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1957



TRUCK  
OPERATORS  
MANUAL

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# OPERATOR'S MANUAL

For 1957

## Chevrolet Light, Medium and Heavy Duty Trucks

SECOND EDITION

### INTRODUCTION

This operator's and owner's manual has been prepared to furnish information pertaining to the driving, care and maintenance of Chevrolet trucks as well as to provide technical data that may be of value or interest to truck owners.

The subject index at the right is a ready reference to the key subjects and will assist in finding any subject covered in the booklet.

All information, illustrations and specifications contained in this literature are based on the latest product information available at the time of publication approval. The right is reserved to make changes at any time without notice.

Part No. 3738032

**Chevrolet Motor Division**

General Motors Corporation

Detroit 2, Michigan

### SUBJECT INDEX

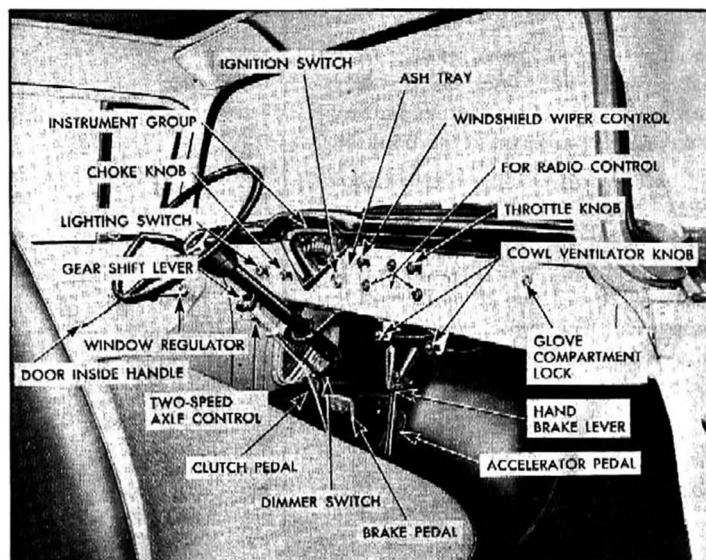
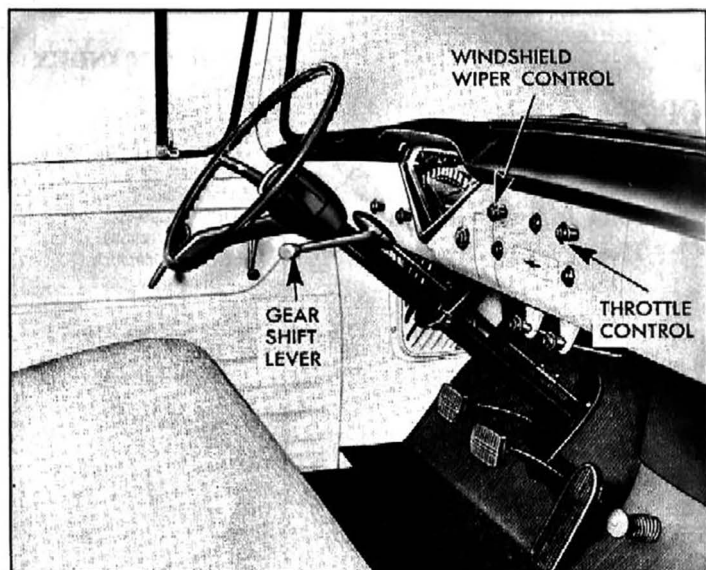
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**Fig. 1—Instruments and Controls**  
 (Top)  $\frac{1}{2}$  and  $\frac{3}{4}$  Ton  
 (Bottom) 1,  $1\frac{1}{2}$ , 2 and  $2\frac{1}{2}$  Ton

# CHAPTER I

## DRIVER'S OPERATING INFORMATION

It is recommended that the maximum speed be confined to 50 miles per hour for the first 500 miles, however you should avoid driving for extended periods at any one constant speed, either slow or fast and avoid full throttle starts and severe application of the brakes in stopping.

Use the lowest gear ratio available when starting up with heavy loads and climbing grades to avoid lugging the engine.

Continuous driving at high speeds should not be done until the truck has been driven 2000 miles.

Such care in operating your new truck will assure proper mating-in of all the running surfaces of the moving parts of the engine, transmission and rear axle.

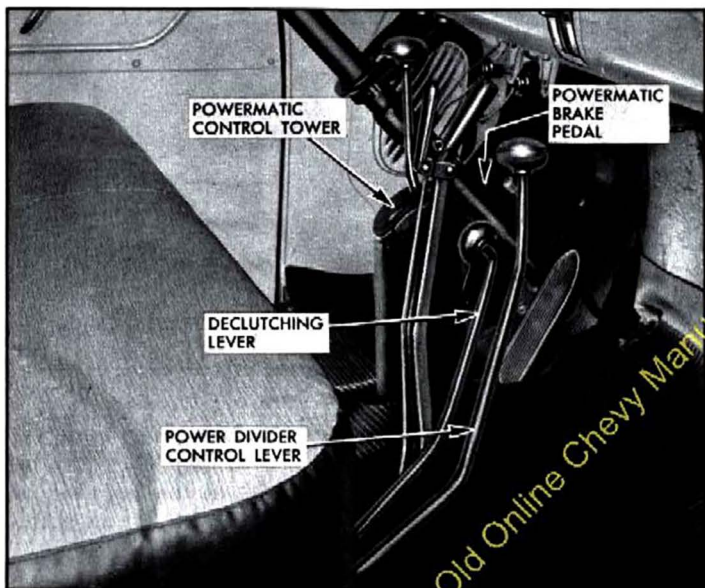


Fig. 2—Powermatic and Power Divider Controls



## INSTRUMENTS AND CONTROLS

The type, location and operation of instruments and controls vary on different models and makes of vehicles; therefore, regardless of the experience an owner or driver may have had, it is advisable to familiarize one's self with the instrument and controls and their use before driving this new truck. The locations of various instruments and controls are shown in Figures 1 and 2.

### Instrument Group

The instruments are grouped in a single triangular cluster on the instrument panel directly in front of the steering wheel (fig. 3).

**Gasoline Gauge.** The electrically operated gasoline gauge is at the upper right side of the instrument cluster (fig. 3). It is wired through the ignition switch and, therefore, only indicates the amount of fuel in the tank when the ignition switch is turned on.

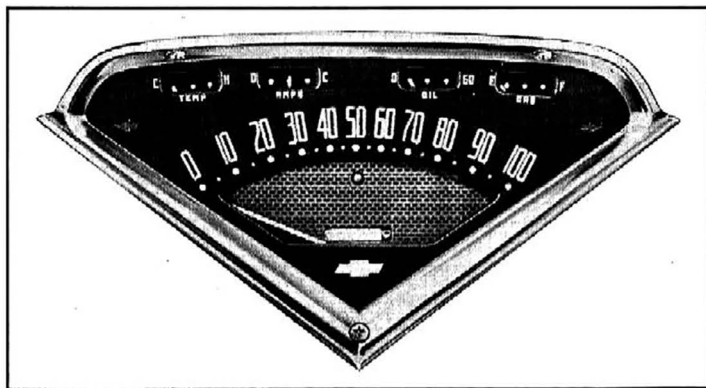


Fig. 3—Instrument Group

**Temperature Gauge.** The water temperature gauge is at the upper left side of the instrument cluster (fig. 3), with the sending unit located in the water jacket at the left rear of the cylinder head on 6-cylinder engines and at the front of the intake manifold on V-8 engines. Normally, when the engine is thoroughly warmed up, the needle will register near the center of the gauge. The driver should watch this instrument closely,

as a quick rise in temperature usually indicates trouble. Should the needle move all the way to the right the engine should be stopped and a check made for cause of overheating.

**NOTE:** Do not remove the radiator cap when engine is excessively hot, do not put water in an overheated engine, and do not run engine when indicator is above "H."

**Ammeter (Battery Indicator).** The Ammeter is to the left of center near the top of the cluster (fig. 3) and indicates the flow of current to and from the battery, except the current taken by the starting motor. Should the ammeter show discharge when the truck is being driven at medium speed, trouble is indicated in the charging system and the battery will soon become discharged.

**Oil Pressure Gauge.** This instrument is to the right of center near the top of the instrument cluster (fig. 3), and indicates whether or not the oil pump is working, but does not indicate the amount of oil in the crankcase.

A low reading is normal at idling speeds with a warm engine and light oil; however, as the engine speed is increased the hand should register near the center of the gauge. In cold weather (especially with heavy oil) the hand may move over to the "60" mark at comparatively low engine speeds.

**NOTE:** Do not accelerate the engine excessively until the oil is sufficiently warm to permit a lower pressure. If the gauge does not show any pressure, stop the engine immediately and determine the cause.

**Speedometer.** The speedometer is located in the instrument cluster and the hand moves across the dial indicating the speed of the vehicle in miles-per-hour.

**Odometer.** The group of figures visible through the opening just above the Chevrolet emblem on the instrument cluster is the odometer and indicates the total mileage the truck has been driven.

**Headlight Beam Indicator.** A red light in the recessed area below the 50 mark on the speedometer lights when the headlights are on the upper beam.

## Switches

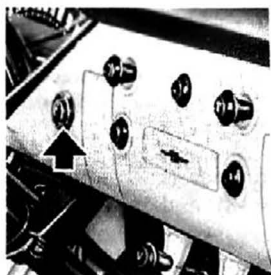


Fig. 4 Ignition Switch

**Ignition Switch.** The ignition switch is located near the bottom of the instrument panel slightly below and to the right of the instrument cluster (fig. 4), and is connected in the low tension circuit between the battery and the coil. This switch is used to make or break the ignition circuit when starting or stopping the engine.

The key is turned clockwise to turn the switch on and counterclockwise to turn the switch off.

On vehicles with ignition key starting the key is turned clockwise from the "ON" position to engage the starter, and counterclockwise to lock.

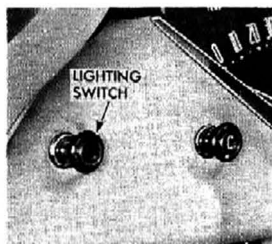


Fig. 5—Lighting Switch

**Lighting Switch.** The lighting switch, located to the left of the instrument group (fig. 5), controls the instrument lamps, headlamps, parking lamps, tail lamp and interior lamp. The interior lamp is turned on by rotating the knob all the way counterclockwise beyond the point where a slight resistance to turning is encountered. When this switch is

pulled out to the first "on" position the instrument lamps, parking lamps and tail lamp are lighted. When the switch is pulled out to the last position the headlamps replace the parking lamps. A dual circuit breaker is incorporated in the main light switch to isolate the headlight circuit for greater safety. If a short should develop in either the headlight circuit or in the stop and dome lamp circuit, one or the other of the two circuit breakers will relieve the load on the electrical system, and at the same time, lights on the unaffected circuit will continue to function. A fuse in the switch protects the instrument panel and tail light circuits.

**Dimmer Switch.** The dimmer switch located on the toe-board to the left of the clutch pedal is used to switch the head-

lamp beam from "high" to "low" or "low" to "high." Each time the switch is depressed the light beam is reversed. A headlamp beam indicator is located below the 50 mark on the instrument cluster. When the lights are on upper beam a red light is visible through the indicator opening. Avoid use of upper beam when meeting other vehicles on the highway or in city traffic.

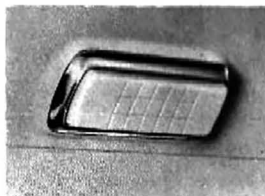


Fig. 6—Dome Lamp

**Horn Button.** The horn button is conveniently located at the center of the steering wheel.

## Controls

**Choke Control.** The carburetor hand choke control knob is located to the left of and below the instrument cluster on the instrument panel (fig. 7). The purpose of this control is to close or partly close the carburetor choke valve. This restricts the air intake and produces a richer fuel mixture for starting, while at the same time opening the throttle by means of a fast idle link on the carburetor except on those models equipped with an updraft carburetor. On models with automatic choke no hand choke control knob is used.

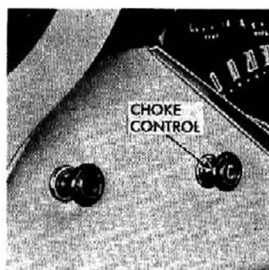
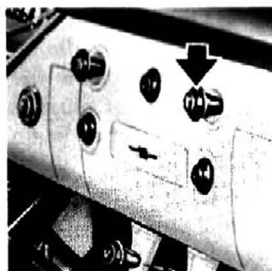


Fig. 7—Choke Control

When the engine is warm and the weather is warm, it should not be necessary to use the choke when starting the engine. When it is necessary to use the choke for starting, it should be pushed part way in as soon as the engine starts and all the way in as soon as the engine will run smoothly without its use.

**CAUTION:** Excessive use of the choke will provide a fuel mixture too rich to burn. Some of this unburned fuel will leak past the pistons and dilute the engine oil and result in improper lubrication, excessive engine wear and poor performance.

**Hand Throttle Control.** The hand throttle control knob used on all models except 31, 32, 36, and 3800 equipped with 6-cylinder



**Fig. 8—Throttle Control**

engine and hydra-matic transmission is located to the right of center of the instrument panel (fig. 8). Pulling out on the control knob opens the carburetor throttle to provide a uniform engine speed above the idle setting. It is generally advisable to pull the hand throttle control out slightly when starting the engine, especially if the engine has a tendency to stall a time or two after starting. No hand

throttle is provided on models 31, 32, 36 and 3800 equipped with 6-cylinder engine and hydra-matic transmission.

**Starter Control.** A starter pedal is located near the center of the toe board to the right of the accelerator pedal on most truck models (fig. 9). Ignition key starting is provided on Forward Control, L.C.F. and automatic transmission equipped models and all V-8 models.

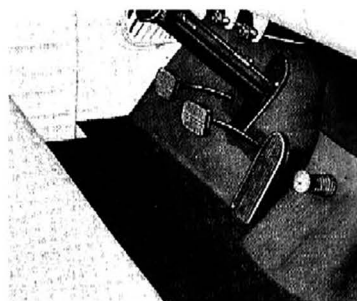
Depressing this pedal or turning the ignition key to "START" engages the starting motor pinion with the teeth in the engine flywheel and closes the starter switch to provide an electrical circuit between the battery and starting motor, thereby cranking the engine. The starting motor draws consid-

erable current from the battery, therefore, it should not be operated for more than 15 seconds at a time. If the engine does not start, locate the cause and correct it before the battery is run down.

**CAUTION:** The starter pedal or key must be released as soon as the engine starts and should never be depressed when the engine is running or serious damage may result.

**Accelerator Pedal.** The accelerator pedal, located to the left of the starter pedal (fig. 9), is used to open and close the carburetor throttle valve.

**Clutch Pedal.** On models equipped with 3-, 4- and 5-speed transmissions the clutch pedal is conveniently located for use by the



**Fig. 9—Control Pedals**



driver's left foot (fig. 9). It is used to engage and disengage the clutch, thereby connecting the engine to or disconnecting it from the transmission and drive line to rear wheels.

**NOTE:** Never drive with the foot resting on the clutch pedal as this produces undue wear on the throwout bearing and other parts.

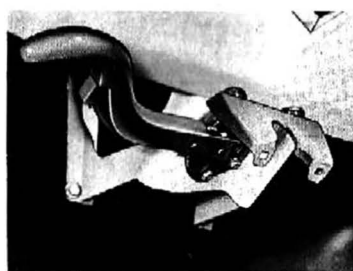


Fig. 10—Parking Brake

the parking brake is applied by a hand type lever extending up through the floor. With all other transmissions the parking brake is applied by a trigger type lever mounted on the steering column support under the instrument panel.

The parking brake lever is connected to the rear wheel brakes on  $\frac{1}{2}$  ton models and  $\frac{3}{4}$  ton models with standard 3-speed transmission, and to a propeller shaft brake on all other models. The propeller shaft brake is either a band-type or shoe-type depending on the model and transmission option.

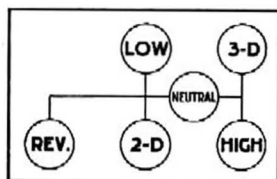


Fig. 11—Four Speed Transmission Shifting Diagram

when the 4-speed transmission is in neutral, reverse and the four forward speeds. The shifting diagram for the 5-speed transmission is marked on the gearshift lever knob.

**Gearshift Lever (3-speed Synchromesh Transmission).** Gearshift control on trucks with 3-speed transmission is located on the steering column (fig. 1).

**Brake Pedal.** The brake pedal is located to the right of clutch pedal (fig. 9). Depressing this pedal applies the service brakes at all wheels in proportion to the pressure applied on the pedal.

**Parking Brake.** On all models equipped with, Powermatic or 4-speed, 5-speed, transmission (except  $\frac{1}{2}$ ton),

**Gearshift Lever (4- and 5-speed Synchromesh Transmission)** extends to the left and back from transmission cover dome at center of floor (fig. 2). This lever is used to shift the transmission gears to the desired position. Figure 11 shows the lever knob positions

when the 4-speed transmission is in neutral, reverse and the four forward speeds. The shifting diagram for the 5-speed transmission is marked on the gearshift lever knob.

Figure 12 shows the gearshift pattern in neutral, reverse and three forward speeds.

**Shift Control Lever (Hydra-Matic Transmission).** The shift control lever, located on the steering column, is used to select neutral, one of three forward speed ranges, or reverse. These positions are plainly marked on indicator segment and are described in further detail on pages 17-22.

**Shift Control Lever (Powermatic Transmission).** The shift control lever located on the transmission tower (fig. 2) is used to select neutral, one of three forward speed ranges, or reverse. These positions are marked on the top of the tower and are described in further detail on pages 17-23.

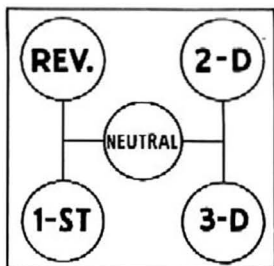


Fig. 12—Three-Speed Transmission Shifting Diagram

### General Controls

**Cowl Ventilator Control Knobs.** Two knobs located below the instrument panel to the right of the steering column (figs. 1 and 2) are used to open and close the dampers in the ventilating system.

Pull knob out to admit outside air, push knob in to shut off air.

**Cigarette Lighter.** The cigarette lighter on models equipped is located to the left of the hand throttle control and is operated by pushing in. When heated it automatically clicks out for use.

**Ash Tray.** A convenient tilt type ash tray is located in the instrument panel to the right of the instrument cluster (fig. 13). The tray is opened by pushing it forward at the bottom. To remove the ash tray for emptying, depress the circular snuffer at top of tray.

**Instrument Panel Compartment Lock.** The door to the convenient package compartment at the right end of instrument panel is controlled by a lock on the compartment door (fig. 14). When the lock is unlocked,

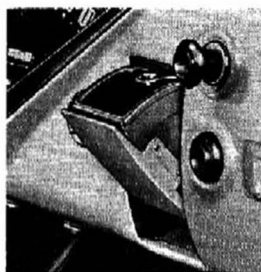


Fig. 13—Ash Tray



Fig. 14—Package Compartment Lock

depressing the lock cylinder releases the latch and the door opens. When the lock is locked the cylinder cannot be depressed. The key used for the door lock and ignition switch is used to lock and unlock the package compartment.

**Keys.** Two identical (octagonal head) keys are furnished with each truck. These keys are used for locking and unlocking the right door, the package compartment and ignition. The key number is stamped on a "knockout" plug in each key (fig. 15). The dealer and the owner should make a record of this number so that the key can be easily replaced in case it is lost, and then the "knockout" plug should be removed so that unauthorized persons cannot obtain the key number and have a duplicate made.

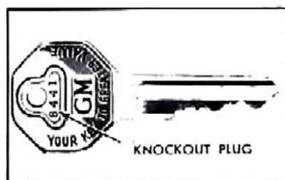


Fig. 15—Key

**Door Locks.** Chevrolet trucks are equipped with push-button theft-resisting door locks which provide a means of locking the cab when the truck is to be left unattended and a means of locking it from the inside.

The door lock cylinder is located in the push button in the right door handle (fig. 16). In the unlocked position, the key slot is vertical, and, when the push-button is locked, the slot is horizontal. In this horizontal position, the push-button cannot be depressed. The door is locked from outside by inserting a key in the push-button and turning it 90° so that key is horizontal. It remains horizontal after the key is removed.

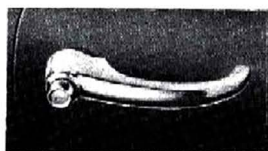


Fig. 16—Door Handle and Push-button Lock

To lock either door from the inside it is only necessary to move the inside remote control handle forward, (fig. 17). Pulling the inside handle to the rear unlocks the door even when it has been locked with a key.

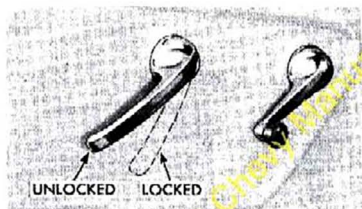


Fig. 17—Door Remote Control and Window Regulator

**Window Regulators.** The door windows are opened and closed by turning the window regulator handles located near the front

upper corner of each door inner panel (fig. 17).

**Door Ventipane.** Operated directly by a turn down catch handle. Spring loaded friction device in the ventilator lower pivot holds the ventilator open to any position selected. Rain deflectors are used over the ventipane.

**Windshield Wiper.** The windshield wiper motor is mounted under the instrument panel and is vacuum or electrically operated. The control knob (fig. 18) located above and to the right of the ash tray on the instrument panel is used to regulate the wiper. Rotating the knob clockwise turns the wiper on and rotating it counter-clockwise decreases wiper speed or turns it off completely.

**Rear View Mirror.** An adjustable rear view mirror is mounted on the forward edge of the left door at the belt line.



Fig. 19—Seat Adjuster

**Seat Adjuster.** The entire seat assembly can be moved forward or back to obtain the most comfortable position for the driver. As the seat is moved forward it raises and tips forward and as it is moved back it is lowered to accommodate a tall person.

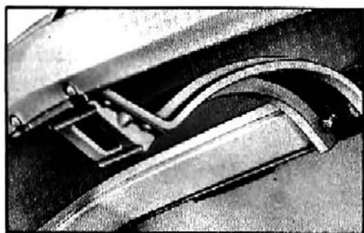
Press down on the lever (fig. 19) to release the seat adjuster lock so that the seat assembly can be moved forward or back as desired. One coil spring assists in moving the seat forward.

**Hood Lock and Safety Catch.** The hood is of the "alligator jaw" type and is held closed by a lock at the front. This lock can be released by reaching in below the upper grille bar in line with the left end of name plate and pull the lever forward (fig. 20), the hood may then be lifted.



Fig. 20—Hood Lock Release

To close the hood, lower it to the safety latch position and then push down on nose of hood to lock it. When the truck is in motion the cam-type lock permits only downward movement of the hood with a wedging action that provides positive locking from the intermediate to the completely closed positions.

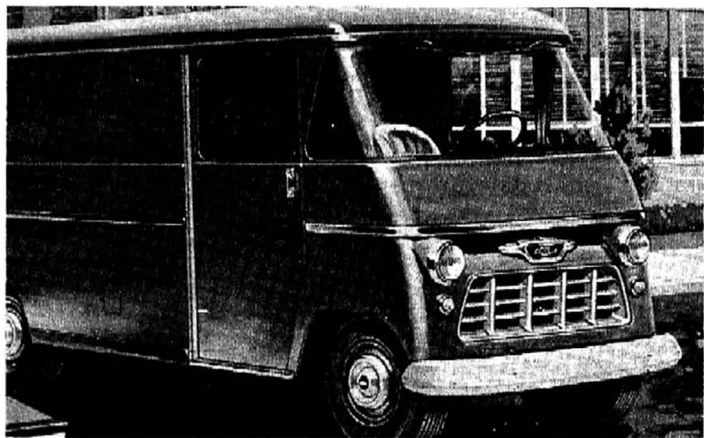


*Fig. 21—Hood Locking Plate*

On low cab-forward models, a similar cam-type lock mechanism is located at each front corner, with only the left mechanism having a safety latch.

### **¾ TON FORWARD CONTROL UNITS**

The Forward Control model shown in Figure 22 is representative of units built by different body manufacturers. Forward Control Chassis are available in five models; ¾ ton with 104", 125" and 137" wheelbase, and 2 ton with 130" and 154" wheelbase. Operation of all instruments, gauges and control knobs are the same as outlined for the conventional truck models with ignition key starter control.



*Fig. 22—¾ Ton Forward Control*



## PRE-STARTING INSPECTION

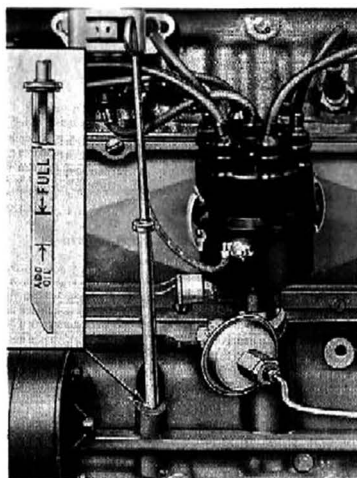


Fig. 23—Oil Gauge Rod—6 Cyl. Engine

The following inspections are not necessary each time the vehicle is started providing the driver has recently driven the vehicle and is certain that attention is not required.

1. Raise the hood, remove the oil gauge rod (fig. 23), wipe oil from rod with clean cloth and replace. Remove gauge rod and note level of oil. If down to the "add oil" mark, oil should be added. See "Lubrication Instructions." Install oil gauge rod.

2. Remove radiator cap and check the level of cool-

ant. If coolant is down a quart or more, water or anti-freeze should be added.

3. Check to make sure the tires are properly inflated. Underinflated tires wear rapidly and are subject to road damage.

4. Rear window, windshield, headlights, tail lamps and reflectors should be cleaned to provide clear vision and good lights.

## OPERATING INSTRUCTIONS FOR MODELS EQUIPPED WITH 3-, 4- AND 5-SPEED TRANSMISSIONS

### Starting the Engine

1. Place ignition key in switch and turn key to vertical position to turn on ignition.

2. Pull choke knob out part or all the way depending on climatic conditions to provide an engine speed just above idle. If the engine is warm or in summer weather it is not generally necessary to use the choke at all. In extremely cold weather the choke should be pulled all the way out.

3. Make sure the transmission shift lever is in neutral. Depress the clutch pedal to relieve the load in the transmission.

4. Step on starter pedal, or turn key clockwise, to crank engine. Release starter pedal or key as soon as engine starts.

If engine does not start in 5 to 10 seconds, release pedal or key and check to see that the above operations have been performed correctly.

5. As soon as engine starts, push choke knob in part way and adjust throttle for smooth idle.

6. Note oil gauge and ammeter readings. Ammeter should show some charge unless engine is idling slowly. Oil gauge should show some pressure. In unusually cold weather the oil gauge needle may go over nearly to 60. If so, run the engine just above idling speed until the indicator hand drops to around the center of the gauge before driving vehicle. The choke knob should be pushed in all the way as soon as the engine is sufficiently warmed up.

### **Shifting Tandem Axle Power Divider and Auxiliary Transmission**

**NOTE:** When equipped with Powermatic transmission, use the Power Divider as a range transmission. Let Powermatic select the shift points. Do not attempt to shift divider when vehicle is under way unless Powermatic is in 6th gear.

Control levers for the Power Divider and Auxiliary Transmission are located to the right of the brake hand lever in the cab (fig. 2). The lever at the extreme right is used for shifting gears into direct, underdrive or puller drive ratio. The other lever is the declutching lever for engaging or disengaging the rearmost axle. When the declutching lever is moved to the rear the gearshift lever will be moved out of the puller ratio position.

To shift from single axle drive to dual axle drive, move the declutching lever forward. To shift from dual axle drive to single axle (forward axle) drive, move the declutching lever to the rear.

To shift auxiliary transmission gears operate the shift lever and clutch pedal the same as in shifting any auxiliary transmission. Move the gearshift lever all the way to the right and forward for puller ratio, move lever all the way to the left and rear for underdrive ratio, or move lever all the way to the right and rear for direct ratio. When this lever is moved to puller position, the rear axle engages automatically and the declutching lever will be moved forward.

### **Shifting Two-Speed Rear Axle**

The control for the two-speed axle shift is located on the gearshift lever (fig. 24). Operating this control also shifts the

speedometer adapter to maintain reasonably accurate speedometer and odometer reading regardless of the axle ratio used.

To shift from low speed to high speed, move control to high speed position, release accelerator, pause a second to allow engine speed to drop down, then again step down on the accelerator.

To shift from high speed to low speed, move control to low speed position, release accelerator and again step down on accelerator.

Operating instructions are shown on a "Decal" on the upper surface of the instrument panel.

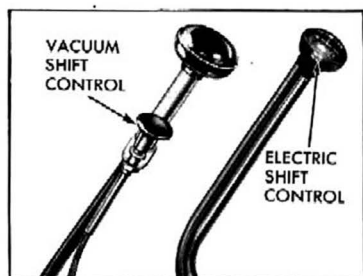


Fig. 24—Two-Speed Axle Shift Control

## OPERATING INSTRUCTIONS FOR MODELS EQUIPPED WITH OVERDRIVE TRANSMISSION

Overdrive optional equipment used with Chevrolet Synchromesh transmission provides an automatic fourth or cruising gear in which engine speed is reduced more than 26% for the same road speed with the conventional transmission.

When vehicle is in motion conventional driving with overdrive-equipped vehicle may be obtained by pressing accelerator pedal to the floor and, at the same time pulling overdrive control handle all the way out. Handle must be pushed in to make overdrive operation available, and this can be done at any time.

**Starting the Engine** is accomplished in the same manner as with conventional transmission (see page 14).

**Use of Clutch Pedal**—When starting from a standstill, or when bringing the vehicle to a stop, or when speeds are above approximately 30 miles per hour the clutch and accelerator pedal must be released for shifting gears. At speeds below approximately 26 miles per hour the free-wheeling action of the overdrive unit makes it possible to do all gear shifting without depressing the clutch pedal.

At any speed above 30 miles per hour the transmission will automatically shift into overdrive if the accelerator pedal is momentarily released. When speed drops below 26 miles

per hour the overdrive will automatically disengage.

When overdrive is engaged and gear shift lever is in either second or third position, extra power for rapid acceleration or hill climbing is supplied by depressing the accelerator pedal to the floor.

**Parking**—When the overdrive control handle is pushed in, engine compression for “in gear” parking will be effective only in the reverse position. To park in any other gear the control handle should be pulled out. Always apply the hand brake when parking a vehicle.

**Push Start**—Should it ever be necessary to start the engine by pushing or towing the vehicle, pull overdrive control handle all the way out and place shift lever in neutral until vehicle reaches 15 mph. Depress clutch, turn key starter to ON and place shift lever in THIRD speed. Engage clutch gradually to start engine. After the engine starts, the overdrive control handle may be pushed in at any time.

## **OPERATING INSTRUCTIONS FOR MODELS EQUIPPED WITH AUTOMATIC TRANSMISSION**

### **Hydra-Matic Shift Control Lever**

The shift lever located just below the steering wheel can be moved to select neutral, one of three forward speed ranges, or reverse. These positions, which are plainly marked on the indicator segment (fig. 25), are utilized as follows:



*Fig. 25—Hydra-Matic Indicator—  
Neutral Position*

**N—Neutral (and starting)**

**1-4—Normal forward driving**

**1-3—For faster acceleration  
and in congested traffic**

**1-2—For controlled power**

**R—Reverse (and parking)**

### **Powermatic Selector Control Lever**

The control lever mounted on the transmission tower can be moved to select neutral, one of three forward speed ranges, or reverse. These positions, which are plainly marked on the tower (fig. 26) are utilized as follows:

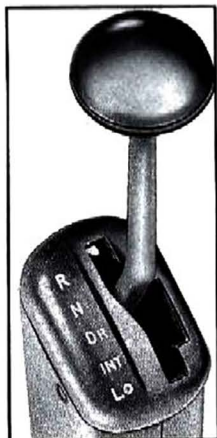
**R—Reverse.**

**N—Neutral (and starting).**

**DR—Normal forward driving.**

**INT—For heavy pulling, congested traffic and descending long grades.**

**LO—For starting extra-heavy loads, and ascending or descending extremely steep grades.**



**Fig. 26—Powermatic Control Lever**

### **Starting Engine**

1. Place control lever in "N" (figs. 25 and 26). Starter will not operate with lever in any other position.

2. Place ignition key in switch and turn key clockwise to turn on ignition.

3. a. On models with automatic choke, depress accelerator pedal part way and release to set automatic choke. When starting a warm or hot engine, hold accelerator pedal down halfway while engaging starter. **DO NOT PUMP ACCELERATOR PEDAL AT ANY TIME.**

b. On models with manual choke, pull choke knob out part way or all the way, depending on climatic conditions, to provide an engine speed just above idle. If the engine is warm or in summer weather, it is not generally necessary to use the choke at all. In extremely cold weather the choke should be pulled all the way out.

4. Engage starter. Release starter as soon as engine starts. Avoid racing engine during warm-up.

5. On models with manual choke, push choke knob in part way as soon as engine starts and adjust throttle for smooth idle.

**NOTE:** If engine does not start in five to ten seconds release starter and check to see that operations have been performed correctly. A possible cause may be flooding. On models with automatic choke, press accelerator down **SLOWLY** to floor and hold it there while engaging starter. The automatic choke is inoperative in this position. See page 24 for procedure to be used in case of flooding on models equipped with manual choke.



6. Note oil gauge and ammeter readings. Ammeter should show some charge unless engine is idling slowly. Oil gauge should show some pressure. In unusually cold weather the oil gauge needle may go over nearly to 60. If so, run the engine just above idling speed until the pressure drops to around the midpoint of the gauge before driving vehicle. Refer to page 20 for procedures when pushing vehicle to start engine. On models with manual choke, the choke knob should be pushed in all the way as soon as the engine is sufficiently warmed up.

### **Moving and Stopping**

Engine should be warmed-up to operating temperature at idle speed with lever in "N" position, particularly in cold weather. With a cold engine the vehicle may tend to creep when placed into a drive position while running at fast idle. A slight application of brake will hold vehicle until motion is desired. With the lever placed into any of the forward drive positions, the vehicle will move forward when accelerator is depressed. The shift events will occur at progressively higher speeds, depending upon accelerator pressure. With slight accelerator pressure, the shifts occur at lower speeds. As accelerator pedal is depressed, shifts occur at higher speeds.

To stop the truck, release the accelerator pedal and apply brakes. Do not move the lever from range selected. When ready to move again, release brakes and depress accelerator pedal as desired.

### **Reversing**

While it is advisable to be at a complete stop before engaging reverse, it is possible to shift into "R" (figs. 27 and 28) while vehicle is in slight (1 to 2 mph) forward motion. Avoid engaging reverse at forward speeds above 1 to 2 mph. This permits moving the lever between "R" and any forward range with light accelerator pedal pressure, permitting rocking the vehicle when required to get out of mud, snow, or sand. With Hydra-Matic raise the lever when moving to reverse. When moving the lever, while raised, from reverse toward neutral, the lever will stop at the "1-4" position. This



**Fig. 27—Reverse Position  
(Hydra-Matic)**

prevents unwanted "over-selecting" into neutral.

### **Standing and Parking**

Under no circumstances should the control lever remain in any other position than neutral when driver leaves the vehicle with engine running. In this case, always apply parking brake.

When parking  $\frac{1}{2}$  and  $\frac{3}{4}$  ton Hydra-Matic equipped trucks, turn off ignition key, then move lever to reverse position. This permits engagement of transmission providing "In Gear" parking. When parking on any decline in this manner, hold vehicle with brakes for a few seconds to permit engagement of transmission parts.

When parking 1 and  $1\frac{1}{2}$  ton Hydra-Matic equipped trucks, **use parking brake only.** Reverse lock parking is not recommended due to the heavier G.V.W.

With Powermatic no "In Gear" parking is provided and hand brake must be firmly applied.

### **Push Start**

If necessary to start engine by pushing a short distance, set automatic choke or operate hand choke as described on page 18, then move lever to "N" (Neutral) position. When vehicle speed reaches approximately 20 mph, turn on ignition switch and move lever to normal drive range position.

### **Towing Vehicle**

Truck must be towed only with rear wheels off the ground or propeller shaft disconnected at axle pinion shaft.

If truck is towed with rear wheels on ground with propeller shaft connected, transmission will be damaged.

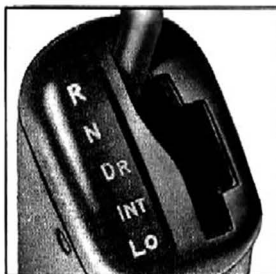
### **Coasting**

Do not coast with lever in "N" (Neutral). Operating the vehicle in this manner may result in damage to the transmission.

## **DRIVING WITH HYDRA-MATIC**

**Operating in "1-4" Range (Automatically shifts from 1st thru 4th).**

The "1-4" Range (fig. 29) is used for normal forward driving, providing reduced engine speeds, and better driving com-



**Fig. 28—Reverse Position  
(Powermatic)**

fort and fuel economy. With normal\* truck speed, a needed spurt of "passing" or "pick-up" speed can be obtained by depressing the accelerator completely (past detent). The drive will then change to a lower speed for a rapid pick-up, and will return automatically to higher speed as truck speed is increased.



Fig. 29—Operating in "1-4" Range

#### **Operating in "1-3" Range (Automatically shifts from 1st thru 3rd)**

The "1-3" Range (fig. 30) is used for better acceleration when driving in congested traffic. This range may also be used when ascending or descending long grades. At normal\* truck speed, a forced down shift to lower speed can be obtained by completely depressing accelerator pedal. Shift again to higher speed will automatically be made as truck speed increases or accelerator is released. Shift can be made from "1-4" to "1-3" at any truck speed on dry roads or from "1-3" to "1-4" at any time.



Fig. 30—Operating in "1-3" Range

\*The speeds at which a forced downshift can be made in "1-4" and "1-3" ranges vary according to tire sizes and axle ratios.

#### **Operating in "1-2" Range**

The "1-2" Range (fig. 31) is used for pulling through mud, sand and snow, for going up grades or to provide braking on down grades. This position should also be used to place vehicle in motion on icy roads. When in this range the  $\frac{3}{4}$ , 1 and  $1\frac{1}{2}$  Ton Models start in 1st speed while the  $\frac{1}{2}$  Ton Models start in 2nd speed under light and medium throttle. At a truck speed of less than 25 mph, the shift from "1-4" or "1-3" range to the "1-2" range may be made to obtain braking by first releasing the accelerator, then moving the lever to the "1-2" position.



Fig. 31—Operating in "1-2" Range

**CAUTION:** Do not change from "1-4" or "1-3" position to "1-2" on icy or slippery roads while under way.

A forced downshift to 1st speed can be made while in "1-2" position with vehicle speed less than 5 mph. Completely depress accelerator pedal. Shift again to 2nd speed will automatically be made when vehicle speed increases or pedal is released.

## **DRIVING WITH POWERMATIC**

**Operating in "DRIVE" Range (Automatic Operation from Converter through third, fourth, fifth and sixth gears).**

The "Drive" Range is used for normal starting and operating and is most satisfactory for truck operation. At engine idle the truck remains standing. Upon opening the throttle, the response is immediate. The transmission starts in converter and continues progressively and automatically into lockup and through the four gear ratios in this range. The driver determines the rate of acceleration by the pressure he exerts on the accelerator pedal. If at any time during the shift cycle, the situation demands sudden acceleration or extra pulling power, a rapid downshift is accomplished by pushing the accelerator pedal through the "detent" resistance. The transmission will remain in the higher ratio in this range only as long as vehicle speed and load requires the higher ratio. When operating at part throttle, the driver can overcontrol the transmission at any time to obtain the best performance or economy.

**Operating in "INTERMEDIATE" Range (Automatic Operation from Converter through third and fourth gears).**

The "Intermediate" range is the performance range for heavy pulling, congested traffic operation and descending long grades. In operation, this range performs in the same manner as Drive range in that the driver determines the rate of acceleration, and he can downshift to the next highest gear ratio by pushing the accelerator pedal through the "detent" resistance. The transmission will remain in the higher ratios within this range only as long as vehicle speed and load require the higher ratio. This is the recommended range for using the Powermatic hydraulic retarder and driving in heavy traffic. The hydraulic retarder operates at the most effective rpm in this range and allows efficient braking effort from both the hydraulic retarder and the engine. As in Drive range the

driver can over-control the transmission to obtain the best performance or economy.

**Operating in "LOW" Range (Automatic operation from Converter through first and second gears).**

The "Low" Range is the extra-heavy-duty range for starting extra heavy loads, and ascending or descending extremely steep grades. The throttle position and vehicle speed control the shift pattern. The transmission remains in the higher ratios of this range only as long as vehicle speed and load require the higher ratio. This range is required only for extreme operating conditions.

## **COLD WEATHER OPERATION**

Cold weather presents many problems to the motoring public; however, the Chevrolet truck will be equally dependable in cold weather if given a minimum amount of attention.

1. The cooling system must be protected against freezing by the use of anti-freeze solutions (see "Cooling System" and "Anti-Freeze"). If not protected by anti-freeze solutions, each time the vehicle is to stand any length of time, the system must be drained at the lower right corner of the radiator and the left rear corner of the six cylinder block, and the plugs or drain cocks on each side of the block on the V-8 engines; also at the plug in the oil cooler inlet elbow at the front of the oil pan on Hydra-Matic equipped models with oil cooler.

2. Light oil should be used in the engine (see "Engine Lubrication").

3. The battery should be kept fully charged to provide the additional power necessary to crank a cold engine and furnish a good spark. A discharged battery will freeze in extremely cold weather which will make battery replacement necessary.

4. The carburetor, fuel pump and fuel tank should be kept free from water which will freeze and restrict fuel flow.

5. The ignition system should be kept in good condition.

6. Assuming that the above items have been given normal attention, the engine should start promptly, even in extremely cold weather, by following the simple procedure described on page 14 for models equipped with conventional transmissions or page 18 for models equipped with automatic transmissions. In abnormally cold weather the engine should be run slightly above idling speed for a few minutes to warm up the oil before driving the truck.



**NOTE:** Never race the engine until the oil gauge needle will stay around the midpoint of the gauge.

7. The Chevrolet cooling system is designed to maintain efficient engine-operating temperatures and to provide adequate and uniform cooling even under the most severe operating conditions.

A thermostat placed at the water outlet of the cylinder head restricts and controls the water circulation as the engine warms up. The standard thermostat on all except 7, 9 and 10000 series trucks is rated at 160 degrees. The 7, 9 and 10000 series and 5, 6 and 8000 series with automatic transmission use a thermostat rated at 151 degrees.

Truck cooling systems incorporate a by-pass cooling feature which enables the coolant to circulate in the engine even when the thermostat stops the flow to the radiator.

## **HOT WEATHER OPERATION**

Hot weather does not generally present as many problems as cold weather; however, a little special attention will pay dividends in the form of economy and convenience.

1. Check the radiator regularly for sufficient coolant as the rate of evaporation is higher in hot weather.

2. Make sure the fan belt is in good condition and properly adjusted.

3. Keep the radiator area free of bugs and other things that restrict air circulation.

4. Have the water level in the battery checked at 10-day intervals or oftener, if necessary.

5. Starting a cool engine in hot weather does not present a problem and the procedure outlined under "Starting the Engine" should be followed.

A hot engine is easily flooded and may start hard. If the carburetor is flooded proceed as follows on models equipped with a manual choke:

- a. Turn on ignition.
- b. Pull hand throttle knob out about  $\frac{1}{2}$ ".
- c. **Do not** pull choke knob out or step on accelerator.
- d. Engage starter without depressing accelerator.
- e. When engine starts, release starter, but do not accelerate engine.

On models with automatic choke, see NOTE on page 18 for procedure to be followed in case of flooding.

## CHAPTER II

### DESCRIPTION, CARE AND MAINTENANCE

#### ENGINE

The Chevrolet valve-in-head truck engines are the prime factor in Chevrolet's outstanding performance and economy. They are designed to give long trouble-free life. Chevrolet's full-pressure lubrication system provides the correct amount of lubrication to all moving parts.

Full stroke length water jackets, surrounding all cylinders, provide uniform cooling and prevent cylinder distortion which would cause undue wear and poor oil economy. The water passages in the cylinder block and cylinder head properly direct the flow of water to provide uniform cooling of the engine.

**Care.** The engine oil level should be checked each time fuel is purchased and oil added when necessary. (See Lubrication Section.) The engine should be inspected occasionally for oil and water leaks and the necessary repairs made. Keep the engine clean externally.

**Valve Tappet Adjustment.** Valve tappet adjustment on 6-cylinder engines should be checked when the engine is thoroughly warmed up, preferably when the truck comes in from a run or after the engine has been run at a fast idle for 30 minutes.

Check the clearance between the rocker arms and the valve stems with a feeler gauge (fig. 32). The valve clearances on 6 cylinder engines should be as follows:

Model	Intake	Exhaust
-------	--------	---------

$\frac{1}{2}$ , $\frac{3}{4}$		
-------------------------------	--	--

and		
-----	--	--

1 Ton...	.006.....	.018
----------	-----------	------

$1\frac{1}{2}$		
----------------	--	--

and		
-----	--	--

2 Ton...	.006.....	.020
----------	-----------	------

The V-8 engines have hydraulic lifters and no adjustment is required.

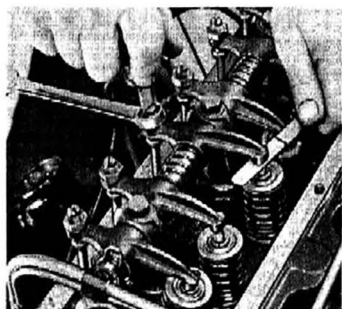


Fig. 32—Valve Tappet Adjustment—  
6 Cyl. Engine

## CARBURETOR

**Downdraft Carburetor.** The downdraft carburetor used on all 6-Cylinder Chevrolet trucks except  $\frac{3}{4}$  ton Forward Control models, is comparatively simple in design and construction and requires very little care or attention. This carburetor has a vacuum controlled power jet and a throttle operated accelerator pump to aid in providing the desired economy and performance.

**Updraft Carburetor.** The updraft carburetors used on the  $\frac{3}{4}$  ton Forward Control trucks are mounted below the manifold. They are equipped with a vacuum controlled power jet and a throttle operated accelerating pump to aid in providing the desired economy and performance.

**Eight Cylinder Model Carburetor.** The carburetor used on all eight cylinder models is of side bowl construction with fuel supply jets and passages submerged below the liquid level.

**Care.** Tighten the carburetor to manifold and the manifold to cylinder head stud nuts to prevent air leaks. Keep the carburetor clean externally and have it completely overhauled at regular intervals so that foreign matter in the carburetor and worn parts will not affect correct carburetion.

**Maintenance—Downdraft Carburetor.** These are but two adjustments on the carburetor, one for idling mixture and the other for idling speed. These adjustments should be made together as changing the adjustment on one affects the other.

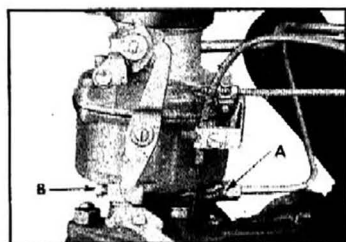


Fig. 33—Downdraft Carburetor Adjustment

Run engine until it reaches normal operating temperature. On conventional transmission models push choke knob in all the way. Turn idling mixture adjusting screw "A" (fig. 33) in clockwise until it

lightly contacts stop, then back it off 1 to  $2\frac{1}{2}$  turns. Let engine idle at 450 to 500 revolutions per minute and turn idling mixture adjusting screw "A" in or out as necessary to obtain a smooth idle.

Before adjusting idling speed make sure hand throttle knob and choke knob are pushed in all the way and accelerator and throttle linkage is free so that throttle lever stop screw "B" (fig. 31) is against stop. Turn screw "B" in or out to obtain an idling speed of 450 to 500 RPM. If necessary readjust idling mixture screw "A" as explained above to obtain a smooth idle.

On automatic transmission models, adjust to idle speed of 400-450 RPM with shift lever in "N" position.

**Maintenance—Updraft Carburetor.** Warm up engine to normal operating temperature and make sure choke and throttle knobs are in all the way. Adjust the engine speed to 450 to 500 RPM on conventional transmission models and 400-450 RPM with shift lever in "N" on Hydra-Matic models by turning the throttle stop screw "B" in or out as desired (fig. 34).

Turn the idle mixture adjusting screw "A" in or out as necessary to provide a smooth idling mixture. If the carburetor is in good condition the best idling mixture should be obtained with the idling mixture screw between  $\frac{1}{2}$  and  $1\frac{1}{2}$  turns open.

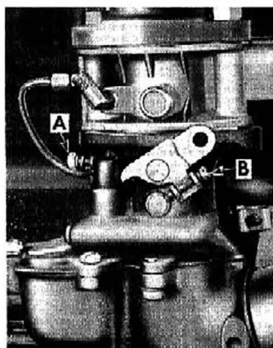


Fig. 34—Updraft Carburetor with Governor

**Maintenance—Eight Cylinder Model Carburetor.** Warm up engine to normal operating temperature and make sure choke and throttle knobs are in all the way. Connect tachometer and vacuum gauge and adjust idle speed to give 475 RPM. Adjust each idle mixture screw separately to give peak vacuum and RPM indications on tachometer and vacuum gauge.

**CAUTION:** Do not turn idle mixture screws tightly against stop or damage to needle seat will result.

If necessary, readjust engine idle to 475 RPM and readjust idle mixture.

## AIR CLEANER

Oil bath cleaners on all truck models operate primarily to remove dust and dirt from the air before it is taken into the carburetor and engine. All air cleaners used incorporate flame arresters.

**Maintenance—**The oil level in the air cleaner reservoir should be checked at regular intervals and sufficient S.A.E. 50 oil

added in summer and lighter oil added in winter. Adding oil and servicing the cleaner will vary greatly, depending upon operating conditions. Experience will tell when these services should be performed. Servicing of this cleaner, an important operation, must be performed as follows:

Remove air cleaner assembly and remove cover and filter element assembly (fig. 35).

Empty the oil out of the cleaner reservoir and clean out all accumulated dirt. Wash filter element by slushing it in cleaning solvent until all foreign matter is removed and dry thoroughly. Wash cleaner body in cleaning solvent and wipe dry. Fill the oil reservoir to the oil level mark with S.A.E. 50 oil in summer and a lighter grade in winter.



*Fig. 35—Servicing Air Cleaner*

Reassemble the filter element to the cleaner, being sure that the flange seats properly against the cleaner body. Install the cover, making sure that the gasket is clean and in good condition.

Install the cleaner making sure that it fits tight and is retained securely with no air leaks.

## **CRANKCASE FILLER AND VENTILATOR**

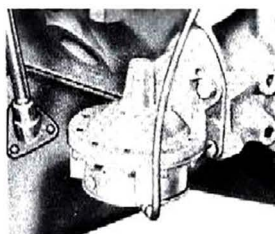
All 6-cylinder engine models are oil filled through the valve rocker cover. Crankcase ventilation is accomplished through a ventilator tube assembly located at the lower right side of the cylinder block on all except Forward Control and 2 ton models.

All V-8 engine models are oil filled through a combined oil filler and ventilator tube assembly located at the front of the intake manifold.

Forward Control, 2 ton and heavy-duty V-8 engine models are equipped with a positive ventilation system which incorporates a variable opening ventilator valve to regulate the amount of crankcase ventilation to meet changing operating conditions. Have this unit cleaned by an Authorized Chev-

rolet Dealer at regular intervals of 10,000 miles or less, depending on operating conditions.

## FUEL PUMP AND STRAINER



*Fig. 36—Fuel Pump*

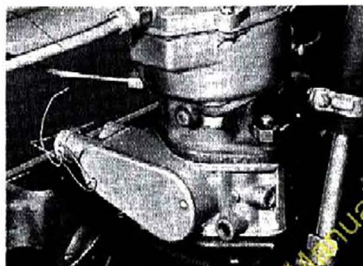
The fuel pump is mounted on the right side of engine (fig. 36) and is operated by an eccentric on the engine camshaft. It pumps fuel from the fuel tank and delivers it to the carburetor. A fuel strainer is located in the fuel tank at the end of the pick-up pipe.

**Care.** The fuel pump should be checked regularly to make sure the mounting bolts, cover to body bolts, pulsator diaphragm cover screws and inlet and outlet connections are tight.

## GOVERNOR

Governors are standard equipment on 2½ ton models and on the 1½ ton and 2 ton school buses. They are also available on other models as special equipment when the truck is ordered, or through the dealer's service department.

The 6-cylinder engine governor is installed between the carburetor and the intake manifold (fig. 37) and automatically governs the speed at which the engine and truck may be operated. The adjusting cap is locked with a seal which should be left in place or a new seal installed when adjusting the engine speed as this is the only protection against tampering by unauthorized persons.



*Fig. 37—Governor (6 Cylinder Engine)*

The V-8 engine governor consists of two primary units, one of which is the centrifugal control valve built into the ignition distributor. The other unit is a vacuum operated diaphragm which is part of the carburetor and is linked to the throttle.

**Care and Maintenance.** The attaching bolts should be kept tight and the governor should be kept clean externally. If the governor requires any service attention the truck should be taken to an authorized service station.

## IGNITION SYSTEM

The ignition system consists of the ignition switch to open and close the circuit, the coil to induce high voltage, the resistor which prevents excessive primary current at low temperatures, the distributor to make and break the low tension circuit and distribute the high tension current, 14-millimeter spark plugs to provide the spark in the combustion chamber and the necessary wiring (fig. 38). The battery is the source of current for the ignition system when starting the engine or operating at idling speed. The generator furnishes the ignition current at higher speeds.

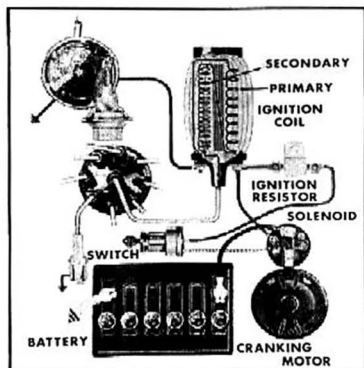


Fig. 38—Ignition Circuit

The distributor mounting provides a means of properly setting the initial ignition timing. The spark advance for various speeds and loads is controlled automatically by governor weights and vacuum control in the distributor. The vacuum control is connected to the carburetor.

The octane selector at the rear of the distributor mounting on six cylinder engines provides a means of advancing or retarding the ignition timing for the grade of fuel being used.

**Care.** The battery and generating system must be kept in good operating condition. All wiring connections in the ignition circuit should be kept tight and free from dirt and corrosion. Keep the high tension wires tight and free from grease.

**DISTRIBUTOR POINTS.** Correct distributor point gap is very important. The distributor points are cleaned and adjusted as part of a good engine tune-up. If their condition is questioned, release the distributor cap clamps, remove cap and lift off rotor. Separate the points and inspect them



for being pitted or badly burned. Clean the points with a breaker point file. If the points do not clean up with a few strokes of the file they should be replaced.

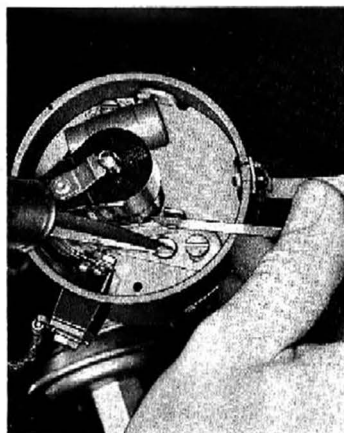


Fig. 39—Adjusting Distributor Points

**Point Adjustment (6 Cylinder).** Crank the engine or place transmission in high gear and rock the truck forward enough to place the movable point cam follower on the peak of cam and check the point opening, using a feeler gauge. Correct adjustment on the 6-cylinder truck engines is .019" with new points or .016" with used points. If necessary to adjust the points, loosen the stationary point lock screw and turn the eccentric screw as necessary (fig. 39). Tighten lock

screw and recheck point opening. Install rotor, reassemble distributor cap and spark plug wires and make sure all terminals of primary wire at ignition coil and distributor are clean and tight.

**Point Adjustment (8 Cylinder).** Raise window in cap, turn adjusting screw clockwise until engine begins to misfire. Then turn adjusting screw one-half turn counterclockwise.

**Point Replacement (6 Cylinder).** In case the points require replacement, loosen the inside terminal nut at the movable point spring and lift the point out. Remove the stationary point lock screw and remove point and arm. Place the new stationary point and arm in position and install the lock screw. Place the movable point on its shaft and position the spring on the terminal behind lock clip and tighten nut securely. Adjust new points and assemble distributor as explained above.

**Point Replacement (8 Cylinder).** The contact point set is replaced as one complete assembly.

1. Remove two attaching screws which hold base of contact assembly in place.
2. Remove condenser and primary lead from insulated connection and remove point set.

3. Replace in reverse order and adjust as noted above.

## IGNITION TIMING

**6-Cyl. Engine.** Set the octane selector at "0" on the scale (fig. 40), and attach a Neon Timing Light to No. 1 spark plug. Start the engine and run it at idling speed. Loosen distributor clamp and rotate the distributor body clockwise or counterclockwise until the steel ball in the flywheel lines up with the pointer on the flywheel housing. Tighten the distributor clamp screw.

**Octane Selector.** When changing to a grade of fuel with a higher or lower octane rating it may be advisable to advance or retard the spark slightly. Advance the spark to take advantage of higher octane fuel and retard it to prevent excessive detonation with lower octane rated fuels. Note the position of the octane selector scale (fig. 40), loosen the clamp bolt and move the distributor assembly toward advance or retard as desired and tighten the clamp bolt securely. By adjusting the spark in this manner it can be readjusted to the original setting when desired without special ignition timing equipment.

**265 and 283 Cu. In. V-8 Engines.** Attach a timing light to the No. 1 spark plug and spark plug wire, using an extension to make contact, and to a good ground. Disconnect vacuum advance, start engine and run at 1,000 R.P.M. with light aimed at top left of harmonic balancer. Loosen distributor clamp and rotate distributor body until the mark on the harmonic balancer lines up with the 8° BUDC mark on the timing tab welded to the front cover. This is 4 marks toward the center of the vehicle from the "O" mark.

Tighten distributor clamp screw, remove timing light, connect vacuum advance and reset engine idle.

### 322 Cu. In. V-8 Engine

1. Connect a 12-volt power timing light to No. 1 spark plug wire at the distributor cap, using a suitable adapter and following the instructions of the instrument manufacturer.

**CAUTION:** Do not attach timing light clip directly to spark plug boot as boot may be punctured so that arc over will occur.

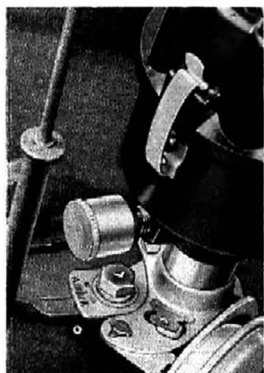


Fig. 40—Octane Selector—  
6 Cyl. Engine

2. Start engine and set it to idle at a speed not to exceed 350 R.P.M., so that vacuum and centrifugal advance mechanisms are not in operation. This is absolutely necessary to insure correct timing.

3. Direct the beam of timing light upon the timing indicator and rear edge of the balancer. The yellow timing mark must be aligned with the indicator line marked "5" for proper ignition timing.

4. If necessary, loosen the clamp bolt and turn the distributor housing very slowly in required direction to bring the yellow timing mark into alignment with the 5 degree line on indicator, then tighten clamp bolt securely.

5. Reset engine idle speed to 450 R.P.M.

6. Remove adapter or extra wires used with timing light, make certain that spark plug wires are securely pushed into distributor cap towers and that spark plug boots are properly installed.

**SPARK PLUGS.** Clean the spark plugs thoroughly, using an abrasive type cleaner and file the electrodes flat. If the porcelains are badly glazed or blistered, the spark plugs should be replaced. All spark plugs must be of the same make and number or heat range.

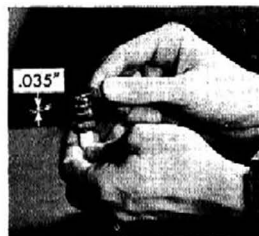


Fig. 41—Setting Spark Plug Gap

Adjust the spark gaps to .035", using a round feeler gauge (fig. 41).

**CAUTION:** In adjusting the spark plug gap never bend the center electrode which extends through the porcelain center; always make adjustment by bending the side electrode.

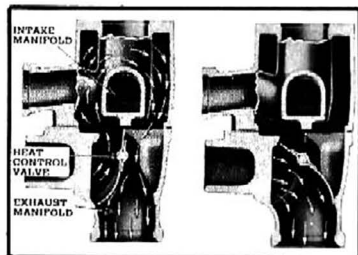
Install the spark plugs in the engine, using new gaskets.

If a tension wrench is used when installing the plugs, the proper tension is 20 to 25 foot pounds maximum. If a tension wrench is not available, screw each plug in "finger tight" and then with a wrench tighten each plug  $\frac{1}{2}$  to  $\frac{3}{4}$  turns beyond this. A C-42 commercial plug is standard on 2 and  $2\frac{1}{2}$  ton models and a 44 plug is standard on all other models.

**MANIFOLD HEAT CONTROL VALVE.** The manifold heat control valve on 6-cylinder engines is located on the inside of the exhaust manifold and is operated by the thermostatic spring, the

center of which is attached to a slot in the valve shaft and the outer end bears against a stop pin on the manifold.

When the engine is cold the valve is in the "heat-on" position as shown in the left half of Figure 42, and the hot exhaust gases are directed against the center of the intake manifold. As the engine warms up, the thermostatic spring moves the valve to the "heat-off" position as shown in the right half of Figure 42 and directs the exhaust gases away from the center of the intake manifold.

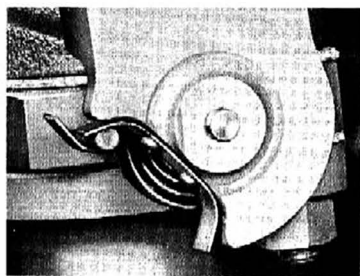


**Fig. 42—Manifold Heat Valve—  
6 Cyl. Engine**

This thermostatic control results in maintaining the proper temperature of the incoming gases under all operating conditions.

The tension of the thermostatic spring is very important. When it is too tight the heat will not be turned off the intake heat riser as the engine warms up, with the result that the incoming gases will be expanded several times greater in volume than in normal operation and it will be impossible to get a full charge of gas and air into the cylinders.

The manifold heat control valve on 265 cu. in. V-8 engines is located in the right manifold exhaust pipe flange (fig. 43). In the "heat on" position, back pressure forces the hot exhaust gases from the right exhaust manifold, through the intake manifold, and bottom flange of the carburetor, to the left manifold.



**Fig. 43—Manifold Heat Valve Thermostatic  
Control—265 Cu. In.—V-8 Engine**

## ENGINE TUNE-UP

In order to enjoy the performance and economy which Chevrolet built into the truck engine it must be kept prop-

erly tuned. Normally this service should be performed every 5,000 miles. A thorough engine tune-up requires the use of special equipment not generally in the hands of truck owners. For this reason it is advisable to have this service performed by a Chevrolet dealer. However for the benefit of those owners who perform many of their maintenance repair operations we will outline the operations which should be given attention when tuning an engine.

**Compression.** Compression tests should be made before performing tune-up operations to determine the necessity for internal repairs—an engine with poor or uneven compression cannot be successfully tuned.

**Spark Plugs.** Remove, clean and adjust (page 33).

**Battery.** Check state of charge by testing specific gravity (page 59).

**Battery Cables.** Clean and tighten cable terminals.

**Distributor.** Clean and adjust distributor points. Inspect cap and rotor (page 31).

**Ignition Timing.** Check and adjust ignition timing (page 32).

**Air Cleaner.** Clean air cleaner (page 27).

**Manifolds.** Tighten manifold bolts to guard against intake and exhaust leaks.

**Valve Clearance.** Check and adjust valve lash to proper clearance (page 25).

**Carburetor.** Adjust idling speed and mixture (page 26).

**Cooling System.** Tighten all hose connections. Check fan belt adjustment and the cooling system for coolant leaks.

**Road Test.** After the engine is tuned the truck should be road tested for performance. During this test the octane selector should be adjusted for the grade of fuel being used. For best performance and economy the octane selector should be set to produce a slight "ping" upon acceleration at wide open throttle.

## COOLING SYSTEM

The cooling system consists of the radiator, fan, water pump, thermostat, water passages in cylinder block and cylinder head, and the necessary connections and fittings. The function of the cooling system is to keep the engine at the most efficient

operating temperature under all driving conditions.

The thermostat, installed at the cylinder head outlet, restricts the flow of coolant to the radiator until a predetermined temperature is reached. During this restriction, a water by-pass in the cylinder block permits pump circulation through the engine. On models equipped with Powermatic transmissions, a by-pass thermostat is used, which permits coolant flow thru the bottom tank of the radiator, where an oil cooler is located, until the thermostat opens. This permits cooling of transmission oil if heated by retarder application. As the coolant warms up, the thermostat opens to permit circulation through the radiator.

**Care.** The cooling system must be kept in good condition if it is to properly cool the engine under all operating conditions. The radiator cap should be removed and the coolant level checked frequently. If the coolant level is low, water or anti-freeze should be added. All models are equipped with a pressure type radiator cap.

**NOTE:** The volume of solution in a Chevrolet cooling system expands about one quart when its temperature is changed from 32° to 160°; therefore, the cooling system should be left from one pint to one quart low if filled cold, especially when anti-freeze is used, to prevent loss of solution through the radiator overflow pipe.



*Fig. 44—Fan Belt Adjustment*

The fan belt tension should be checked occasionally and, if necessary, adjusted to provide  $\frac{7}{16}$ "- $\frac{1}{2}$ " deflection. The up or down movement from the normal position should be measured at a point midway between fan and generator pulleys (fig. 44).

The system should be thoroughly checked for leaks. Tighten screw type hose clamps occasionally.

Twice a year the radiator, cylinder block, and, where applicable, the automatic transmission oil cooler should be completely drained. Using a water hose the cooling system should then be thoroughly flushed until the water runs clear. Then

close the drain cock; replace drain plugs and refill system with coolant.

**NOTE:** For complete draining, the drain cock at right front side of radiator should be opened, the drain plug at rear left side of 6-cylinder block, or at each side of the V-8 block should be removed and the plug in the Hydra-Matic transmission oil cooler inlet elbow at the front of the oil pan should be removed.

The front of the radiator core should be checked occasionally for bugs, leaves, etc., which would restrict air circulation. These can be flushed out from the back side of radiator with an ordinary water hose and city water pressure.

## **Maintenance**

**Flushing.** Scale and deposits in the cooling system which will not flush out can generally be removed by using a good cooling system cleaning compound. When using a cleaning compound in the cooling system it is advisable to follow the instructions furnished with the particular brand of compound.

If cooling system cleaning compound will not thoroughly clean the system it is advisable to reverse-flush the system. **Thermostat.** A faulty thermostat may cause abnormally high or abnormally low engine temperature. If the condition of the thermostat is questioned it can be removed and tested as follows:

1. Open radiator drain cock and drain out about half the coolant, which will bring the coolant level below the thermostat; close drain cock.
2. Loosen upper hose clamps and remove hose.
3. Remove the two cap screws that attach the water outlet to the thermostat housing. Remove water outlet, gasket and thermostat.
4. Heat a container of water to a temperature 25° above the temperature stamped on the thermostat and place thermostat in the water and see if it opens fully.
5. Place thermostat in water 10° below the temperature stamped on thermostat and see if thermostat fully closes.
6. If the thermostat does not fully open on test in Item 4 or fully close on test in Item 5, it should be replaced.
7. Place thermostat in housing, install water outlet using a new gasket, install attaching screws and tighten them evenly and securely.
8. Inspect the upper hose and if necessary replace it. Install the hose and tighten hose clamps securely.
9. Fill cooling system and check it for leaks.

**ANTI-FREEZING SOLUTIONS.** In selecting an anti-freezing solution for winter operation the local conditions and the type of service should be considered. The following information is given to assist the truck owner in selecting the anti-freezing solution best suited to meet his own individual driving conditions.

**Alcohol.** Denatured alcohol and methanol are used extensively for anti-freezing solutions. The various types of alcohol anti-freeze afford protection against freezing and have the advantage of wide distribution and low first cost.

There are, however, two important disadvantages. Alcohol is lost, especially on warm days and on hard driving, and, unless the solution in the radiator is tested periodically and sufficient alcohol added to replace the loss, the engine or radiator, or both, are likely to be damaged by subsequent freezing. The vehicle finish may be softened and damaged by contact with alcohol solutions or vapors. Alcohol accidentally spilled on the finish should be flushed off immediately with a large quantity of cold water without wiping or rubbing.

### GM METHANOL PROTECTION TABLE

Cooling System Capacity in Quarts	Quarts of GM Methanol Required for Anti-Freeze Protection at Temperatures shown below							
	3	4	5	6	7	8	9	10
16	13°	3°	-8°	-21°	-36°	-52°		
17	14°	6°	-4°	-16°	-29°	-45°		
18	16°	8°	-1°	-12°	-25°	-38°	-52°	
19	16°	9°	1°	-8°	-20°	-32°	-45°	
20	17°	11°	3°	-5°	-16°	-27°	-39°	-52°
21	18°	12°	5°	-3°	-12°	-22°	-34°	-46°
22	19°	13°	7°	0°	-9°	-18°	-29°	-40°
23	20°	14°	8°	1°	-7°	-15°	-25°	-36°
24	20°	15°	10°	3°	-4°	-12°	-21°	-31°

See Page 96 for cooling system capacity.

A hot water heater adds about one quart to standard system capacity.

Other alcohol and methanol anti-freeze should be used in accordance with instructions issued by the anti-freeze manufacturer.

**Ethylene Glycol.** Ethylene glycol is, in first cost, more expensive than alcohol. Ethylene glycol anti-freezing solutions have the distinct advantage of possessing a somewhat higher boiling



point than alcohol anti-freezing solutions and, consequently, may be operated at a higher temperature, resulting in a more effective performance of the heater.

"GM Ethylene Glycol" is especially treated and compounded for use in the cooling system. Other ethylene glycol preparations are available, but only those containing suitable corrosion inhibitors and compounded for use in automotive cooling systems should be used.

## GM ETHYLENE GLYCOL PROTECTION TABLE

Cooling System Capacity in Quarts	Quarts of GM Ethylene Glycol Required for Anti-Freeze Protection at Temperatures shown below								
	3	4	5	6	7	8	9	10	11
16	17°	10°	2°	-8°	-19°	-34°	52°		
17	18°	12°	5°	-4°	-14°	-27°	-42°		
18	19°	14°	7°	0°	-10°	-21°	-34°	-50°	
19	20°	15°	9°	2°	-7°	-16°	-28°	-42°	
20		16°	10°	4°	-3°	-12°	-22°	-34°	-48°
21		17°	12°	6°	0°	-9°	-17°	-28°	-41°
22		18°	13°	8°	2°	-6°	-14°	-23°	-34°
23		19°	14°	9°	4°	-3°	-10°	-19°	-29°
24		19°	15°	10°	5°	0°	-8°	15°	-24°

See Page 96 for cooling system capacity.

A hot water heater adds about one quart to standard system capacity.

Other ethylene glycol anti-freezes should be diluted in accordance with the instructions issued by the anti-freeze manufacturer.

**Glycerine.** Radiator glycerine, which is chemically treated to avoid corrosion in accordance with the formula approved by the Glycerine Producers' Association, is satisfactory for use in the cooling system.

**SERVICING THE COOLING SYSTEM.** Before installing anti-freezing solution, the cooling system should be inspected and serviced for winter operation. The system should be thoroughly cleaned and all loose scale and iron rust removed.

Cylinder head bolts should be tightened to avoid the possibility of anti-freezing solutions leaking into the engine or exhaust gas blowing into the cooling system. Anti-freeze or water mixed with engine oil may form sludge, which will interfere with lubrication and, in some cases, may form varnish-like deposits which will cause gumming and sticking of the moving parts.

**NOTE:** Tightening cylinder head bolts may decrease valve clearance. Check and adjust valves if necessary (See Valve Adjustment).

It may be advisable to install new radiator and heater hose, especially when ethylene glycol or glycerine anti-freezing solutions are used. Ethylene glycol and glycerine have a tendency to shrink rubber that previously has been swollen by the absorption of water, and leaks may develop.

The water pump seal must be leak tight, not only to avoid loss of liquid, but to prevent air from being drawn into the cooling system. Aeration of the cooling liquid causes foaming and promotes oxidation which may result in serious corrosion.

After the anti-freezing solution has been installed, the entire system, including the hose connections, cylinder head gasket and pump, should be inspected regularly to insure that no leaks have developed.

The use of additional rust preventives, or inhibitors, is not recommended with "GM Anti-Freeze," "GM Ethylene Glycol," or with other anti-freeze preparations that have been chemically treated or compounded for use in automotive cooling systems.



**Fig. 45—Anti-Freeze Tester**

**Testing.** Some devices, used for testing anti-freezing solutions, will indicate the correct freezing point only when the test is made at a specific temperature. Other testers, provided with thermometers and tables, indicate the freezing points corresponding to readings made at various temperatures (fig. 45). Disregarding the temperature of the solution, when tested,

may cause an error as large as 30° F.

Some testing devices are made to test only one kind of anti-freezing solution. Others have several scales and may be used for the corresponding kinds of anti-freeze.

The freezing point of a solution containing both alcohol and ethylene glycol cannot be determined accurately by means of a hydrometer.

## CLUTCH

**Description.** The clutch, which provides a means of disconnecting the engine from the transmission while shifting gears, is of the single plate dry disc type. The 235 cu. in. engine clutch consists of a pressure plate, cover, disc with facings, diaphragm type spring, throwout bearing, throwout fork and small correlated parts. The 8-cylinder engine clutch uses heat treated coil springs and release levers instead of the diaphragm type spring.

**Care.** The Chevrolet clutch requires very little care or attention; however, proper use of the clutch will contribute materially to the carefree service it will render.

Never drive with the foot resting on the clutch pedal as this causes constant wear on the clutch throwout bearing and may cause slight clutch slippage which will cause premature failure of the parts.

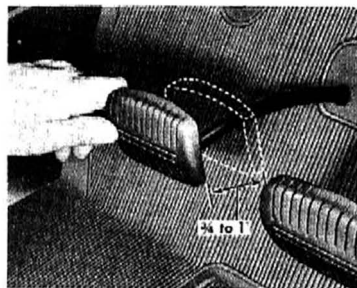


Fig. 46—Clutch Pedal Free Travel

The clutch pedal free travel should be checked at regular intervals by pushing the clutch pedal down with the fingers to determine the distance it moves before the throwout bearing engages the clutch diaphragm spring or release levers. This free travel should be  $\frac{3}{4}$ " to 1" (fig. 46). If adjustment is necessary, follow instructions below.

## Maintenance

**Clutch Pedal Adjustment.** Push the clutch pedal down with the fingers and note the amount of pedal free travel. If this free travel is more than 1" or less than  $\frac{3}{4}$ " adjustment should be made.

Loosen the lock nut "A" (fig. 47) on clutch release rod and back off the adjusting nut "B" to increase the pedal free travel, or tighten the adjusting nut "B" to decrease the pedal free travel. When correct travel is obtained, tighten the lock nut "A" and recheck the pedal free travel.

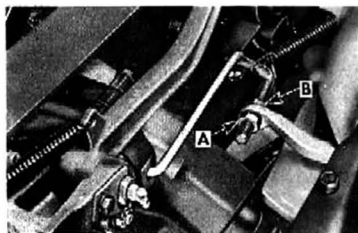


Fig. 47—Clutch Pedal Travel Adjustment

## TRANSMISSION

**3-Speed Transmission.** The sturdy synchro-mesh transmission with steering column gear shift control used as standard equipment on the  $\frac{1}{2}$  and  $\frac{3}{4}$  ton models provides three forward speeds and reverse. It is of helical gear type providing unusually quiet operation in all gears.

The gears are carburized and shot peened for additional strength and long life. The countergear is mounted on needle bearings. The clutch gear is supported by a heavy duty ball bearing at the front end of the transmission case. The front end of the mainshaft is supported by two sets of needle pilot bearings in the hollow end of the clutch gear and the rear end is carried by a ball bearing mounted in the rear of the transmission case.

**Heavy-Duty 3-Speed Transmission.** A heavy-duty 3-speed transmission, which incorporates greater gear reductions and more rugged construction than the standard 3-speed transmission, is available as optional equipment on  $\frac{1}{2}$  and  $\frac{3}{4}$  ton truck models; also on 1 ton truck models where heavy duty applications do not require a 4-speed transmission. This transmission features wider gears with greater contact area, heavier mainshaft support bearings, larger double row roller countershaft bearings, and gear ratios better suited to heavier duty truck operation.

**4-Speed Transmission.** This sturdy synchro-mesh transmission has increased durability and has synchro-mesh action into second, third and fourth speeds using helical gears, affording quieter operation and longer life.

The gears are drop forged steel, heat treated for strength and long life. The clutch gear is supported in the case on a

ball bearing and the mainshaft is piloted at the front on roller bearings in the clutch gear and supported in the case at the rear by a large ball bearing. The countershaft is mounted at the front in a roller bearing and at the rear in a large ball bearing.

**5-Speed Transmission.** A 5-speed transmission is standard equipment on series 9000-10000 trucks. The transmission is a manually shifted, synchro-mesh, helical gear type. Fifth forward speed is direct drive. The main drive gear bearing is a single row ball type. The mainshaft is supported by a straight roller bearing at the front and a single row ball bearing at the rear. The countershaft is mounted on a single row ball bearing at the front and on a roller bearing at the rear. The reverse idler cluster rotates on steel-backed bronze bushings.

**Heavy-Duty 5-Speed Transmission.** A 5-speed transmission of heavier construction with greater torque capacity is optional equipment on the heavy-duty 2½ ton trucks. The countershaft is mounted on a straight roller bearing at the front and a single row ball bearing at the rear. The reverse idler cluster rotates on two straight roller bearings.

**Care and Maintenance.** Chevrolet 3, 4 and 5-speed transmissions require very little care or maintenance. The lubricant level should be checked at regular intervals and lubricant added as necessary. See instructions in the Lubrication Section for further information on the maintenance of your transmission.

**Hydra-Matic Transmission.** An automatic transmission is available as optional equipment on ½, ¾, 1 and 1½ ton models. This transmission provides greater operating convenience, particularly in continuous stop-and-go operation, and greater versatility for the vehicle in meeting all driving conditions by virtue of the range of gear ratios included.

Two separate options are available, one for ½ ton models, and another for ¾, 1 and 1½ ton models. Each option has a separate set of ratios appropriate for the rated gross vehicle weight of the models in which it is used.

The transmission consists of a fluid coupling, which replaces the conventional clutch, combined with a hydraulically controlled automatic transmission having four-speeds forward and one reverse. Gear changing is accomplished automatically

by the transmission in accordance with speed and load demands. See "Driving with Hydra-Matic," page 20.

**Care and Maintenance.** To maintain efficient operation of the Hydra-Matic Transmission, the fluid level should be checked every 1,000 miles and the fluid changed every 25,000 miles. Also an adjustment of the bands should be performed by your Chevrolet Dealer at the first 1500 mile interval.

**Powermatic Transmission.** A 6-speed automatic transmission is available as optional equipment on 2 and 2½ ton trucks. This is a torque converter type, heavy-duty transmission with an integral, hydraulic retarder for retarding truck speed or for continuous downhill braking. Four planetary gear units provide four ranges (low, intermediate, high and reverse), and a splitter planetary gear system makes two gear ratios available in each range.

Selection of the optimum ratio in each range for the vehicle speed and load demand is automatic. See "Driving with Powermatic," page 22.

**Care and Maintenance.** To maintain efficient operation of the Powermatic Transmission, the fluid level should be checked every 1000 miles, the fluid changed every 15,000 miles and the full-flow oil filter cartridge should be replaced at each fluid change.

## PROPELLER SHAFT AND UNIVERSAL JOINTS

The ½ ton and the 104" wheelbase Forward Control models use a tubular propeller shaft in a Hotchkiss drive system. The universal joints are needle bearing type with a single lubrication fitting to provide lubrication to all trunnion bearings through the drilled trunnion.

The ¾ ton models use a single propeller shaft Hotchkiss type drive system similar to ½ ton models when equipped with standard 3-speed or Hydra-Matic transmission and two propeller shafts and three universal joints when equipped with other transmissions.

The 125" and 137" wheelbase Forward Control models use two propeller shafts and three universal joints both as standard equipment and in combination with transmission options.

The 160¾" wheelbase L.C.F. and the 2 ton 174½", 196½" and 222½" wheelbase models use three propeller shafts and four universal joints.

The 240" wheelbase 2½ ton models use four propeller shafts and five universal joints.

All models with two or more propeller shafts (except tandem axle models) have a bearing support located near the rear ends of the front propeller shaft and each intermediate shaft. The 174" wheelbase tandem axle model has a bearing support at the front end of the intermediate shaft. The 192" tandem axle model has a bearing support at the rear of the front propeller shaft.

All bearing supports are permanently lubricated at assembly and require no further lubrication.

**Care.** When the universal joints are lubricated regularly as instructed in this manual, they will require very little other care or maintenance. The universal joint "U" bolt nuts should be checked occasionally to make sure they are tight. Do not overtighten as bearing cups will be distorted.

## REAR AXLE

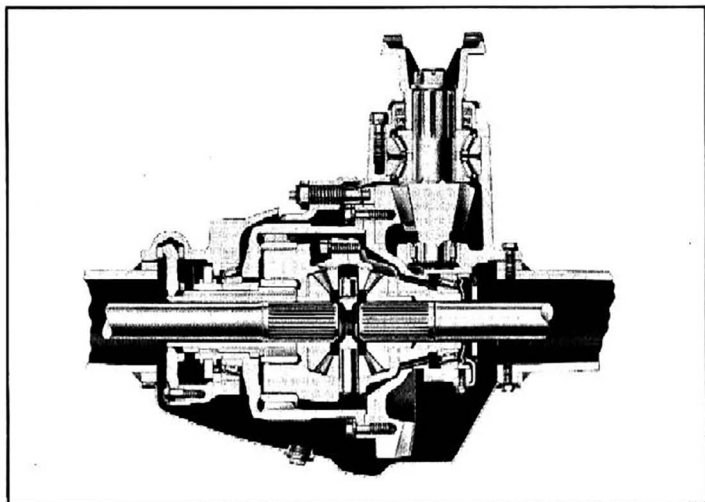
**½-Ton**—The ½ ton rear axle is of the semi-floating hypoid gear Hotchkiss drive type. The rear universal joint rear yoke is splined and locked to the pinion shaft. The hypoid drive pinion is mounted on pre-loaded taper roller bearings. The hypoid design ring gear is bolted to the differential case which is mounted on pre-loaded roller bearings. These units together with the two differential side and pinion gears are mounted in a differential carrier containing lubrication channels for the pinion bearings. The axle shafts are splined to the differential side gears. The outer ends of the axle shafts support the weight of the vehicle on roller bearings.

**¾, 1, 1½, 2 and 2½ Ton**—The standard axle on these models is a full floating rear axle having straddle mounted pinion, a four pinion differential and a hypoid ring gear and pinion. The differential is mounted in roller bearings.

**Heavy-Duty Single Speed Rear Axle**—A larger rear axle which has spiral bevel gears is available as an option on 9-10000 models. The differential case is mounted in the carrier on taper roller bearings. The drive pinion is straddle mounted between straight roller bearings at inner end and two opposed-taper roller bearings at outer end. Drive to rear wheels is through studs and tapered dowel rings.

**2-Speed Axle** — A planetary-reduction type 2-speed axle is optional on 1½ and 2 ton trucks. Torque is transmitted to the differential case through eight teeth on four planetary pinions to guarantee long life in severe service. The primary gears are of hypoid type with large tooth contact areas and great torque capacity. The drive pinion is straddle mounted. Axle shafts are equal in length for maximum durability. A distinctive feature is that only the drive pinion and ring gears operate to produce the high range reduction, the planet and sun gears being locked to revolve with the ring gear.

In low-range operation the primary (hypoid) reduction is multiplied by a planetary system reduction ratio of approximately 1.36:1 for the final drive.



*Fig. 48—Two-Speed Axle*

The secondary reduction occurs only when the sun gear is held stationary, the four planets then being driven in an orbit around the sun gear by internal teeth in the large case or "pot" which is bolted to the ring gear.

Planet journals are integral with the planet support and differential case. The orbit speed of the planets is conveyed to the rear wheels through the differential case, differential pinions, differential side gears and axle shafts.



Control of the sleeved sun gear is accomplished through lateral movement of a coaxial "shifter sleeve" splined over the sun sleeve. Left hand movement of the shifter collar and sleeve produces sun gear stoppage when dove tail teeth in an anchor ring attached to the housing engage similar teeth on the approaching face of the shifter sleeve.

Right hand movement of the shifter collar and sleeve by the vacuum control mechanism results in release from the anchor ring. Clutching teeth on the opposite face of the shifter sleeve then mesh with dove tail teeth projecting from the planet case and ring gear assembly. Thus engaged, the sun gear must turn at the speed of the ring gear, the planets are locked in place, and only the reduction afforded by the primary drive gears determines mean rear wheel speed.

A two way vacuum system actuates the shift collar and sleeve. The hand control is located on the gear shift lever permitting simultaneous transmission and axle shifts so that full advantage may be taken of all forward ratios.

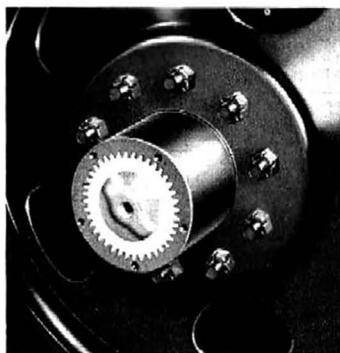
**Heavy-Duty 2-Speed Rear Axle**—A heavy-duty planetary 2-speed axle with hypoid drive gear and pinion is available on 2½ ton models. A larger 2-speed axle with spiral bevel drive gear and straddle mounted pinion is also available on 9-10000 models.

A set of planetary gears and a sliding clutch gear, installed between drive gear and differential, permits ratio change from high to low or vice versa. Shift control is by electro-mechanical means through a switch button on the gearshift lever and a small reversible electric motor located on the differential carrier.

**CAUTION:** The 2-speed axles have no neutral position. Axle must always be operated in either high or low ratio. To attempt to coast with axle supposedly in neutral may result in serious damage to the unit.

**Care.** The rear axles used on Chevrolet trucks require very little care or attention. The lubricant level should be checked at each chassis lubrication and the differential carrier and inspection cover bolts should be kept tight.

The axle flange to hub bolts on ½, ¾, and 1 ton, and 9-10000 series truck axles should be kept properly tightened. If these bolts are found loose and grease has worked out between hub and axle flange, new shaft gaskets should be installed.



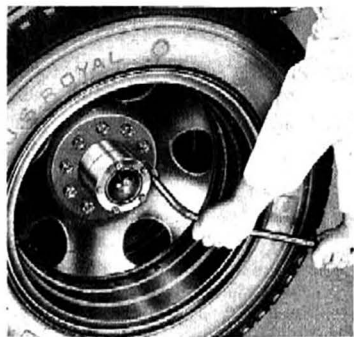
*Fig. 49—Shaft to Hub Attachment*

On 1½ and 2 ton and 7000-8000 series truck axles the axle shaft is spline attached to the wheel hub (fig. 49). External splines on the outer diameter of the shaft flange mesh with internal teeth in the hub. The shaft is retained in the hub by a hub cap. Should leakage occur simply remove hub cap, clean mating faces, install new gasket, replace hub cap and tighten hub cap retaining bolts securely.

## REAR WHEELS AND BEARINGS

Demountable steel disc wheels are standard on all models. They are held securely on the axle flange or hub flange with special bolts and nuts. All models except the half ton have the wheel hub mounted on the outer end of axle housing with two large roller bearings. An adjusting nut which screws onto the end of axle housing provides a means of adjusting the bearings. The ½ ton semi-floating axle has the wheel bolted directly to the axle flange. The bearing is in the outer end of the axle housing and rides on a special race on the axle shaft just back of the axle flange.

**Care.** Keep the wheel to hub or axle flange bolt nuts securely tightened (fig. 50). In case the hub flange or wheel disc should become coated with oil or grease the wheel should be removed and all grease removed with cleaning solvent. Reinstall wheel and tighten bolts securely.



*Fig. 50—Tightening Wheel Nuts*

## FRONT AXLE

All Chevrolet trucks use what is known as a reverse Elliott type "I" beam axle. The drop forged steel "I" beam

has the spring seats forged integral with the "I" beam.

The  $\frac{1}{2}$  ton models have a single row ball thrust bearing enclosed in a dust shield at each kingpin. The  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$  and 2 ton models use two thrust washers separated by a third washer and enclosed by two telescoping dust shields. The  $2\frac{1}{2}$  ton models have roller type anti-friction bearings enclosed in a dust shield.

**Care.** The front axle and its connections should be checked regularly for wear or looseness, especially for loose spring to axle "U" bolts, loose steering tie rod and drag link joints and for bent tie rod, drag link or steering arms.

**Alignment.** To provide easy steering, normal tire life and road stability and to prevent such troubles as shimmy, wander, tramp and tendency to lead to right or left, it is necessary to maintain correct front end alignment.

Since considerable expensive special equipment is required to properly check and adjust all the factors of front end alignment, it is advisable to take the truck to a Chevrolet dealer for this service when the front end alignment requires attention.

## FRONT WHEELS AND BEARINGS

Demountable steel disc front wheels are standard on all models. The wheels are attached to the hub with special bolts and nuts. The hubs on the L.C.F., 2 and  $2\frac{1}{2}$  ton heavy duty models are mounted on the spindle with tapered roller bearings. The hubs on all other models are mounted on ball bearings.

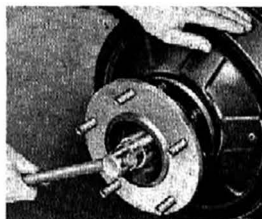


Fig. 51—Adjusting Front Wheel Bearings

**Care.** Keep the wheel to hub mounting bolt nuts tight and the wheel bearings properly adjusted as instructed below.

**Wheel Bearing Adjustment.** 1. Jack up front end of vehicle and remove wheel and tire assembly. Remove hub cap and dust cap or the plate from end of hub. Remove cotter pin from end of spindle.

2. On  $2\frac{1}{2}$  ton heavy-duty models tighten spindle nut to 56 ft. lbs. torque while rotating hub. On all other models, tighten nut to 33 ft. lbs.

3. On models with hubs mounted on ball bearings (all except L.C.F., 2 and  $2\frac{1}{2}$  ton heavy duty models), back off spindle nut until alignment with nearest hole in spindle is obtained,

then install cotter pin. On L.C.F. 2 and 2½ ton heavy duty models using tapered roller bearings, back off spindle nut ¼ turn minimum and install cotter pin if aligned with hole in spindle. If alignment with hole in spindle is not obtained, back off nut slightly until the nearest castellation in the nut lines up with a hole in the spindle.

4. Spin the drum to make sure that it rolls freely. Properly lock the cotter pin by spreading the end and bending it around. Install the hub plate or dust cap and hub cap. Replace wheel and tire assembly and remove jack.

## STEERING GEAR

The modern, heavy-duty recirculating ball type steering gear used on Chevrolet trucks is designed for easy steering and road stability. The steering gear reduction is as follows:

2 Ton L.C.F. and Forward Control models . . . . .	27.76 to 1
2½ Ton L.C.F. . . . .	28.14 to 1
1½, 2 and 2½ Ton models (except L.C.F.) . . . . .	23.6 to 1
All other models . . . . .	21.3 to 1

**Care.** Check the steering gear to frame bolts regularly to make sure they are tight. Keep the pitman arm to pitman shaft nut tight. Keep the housing side and end covers tight to prevent grease leak and steering looseness. Add lubricant when necessary.

**Steering Gear Adjustment.** Steering gear adjustment is a very important operation and requires the use of a special checking scale; therefore, it is suggested that this service be performed by a Chevrolet dealer.

## BRAKE SYSTEM

The self-energizing type braking system used on all Chevrolet trucks combines hydraulically operated service brakes with mechanically operated parking brakes.

The hydraulic service brakes provide brake action at all wheels, while the mechanical parking brakes operate on the rear wheels of ½ and ¾ ton truck models. The 1, 1½, 2 and 2½ ton models are equipped with a propeller shaft brake.

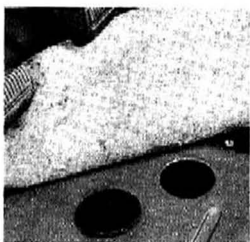
The service brake system consists of the brake pedal, main cylinder, brake lines to all wheels, wheel cylinders, shoes with linings and brake drums. The parking brake on ½ and ¾ ton models with standard transmission consists of the brake lever, pull rods, cables and the toggle at the wheels which actuates the brake shoes.

The parking brake on 1 ton models and others with 3-speed heavy duty, 4-speed, or automatic transmission consists of the brake lever, bell cranks, pull rod, brake drum attached to the transmission, and an external brake band.

Parking brake on 1½, 2 and 2½ ton models consists of the brake lever, bell cranks, pull rod, brake drum attached to the transmission drive flange and internal and external brake shoes. When equipped with optional transmission, these models have the external band type propeller shaft brake.

The hydraulic system must be kept full of fluid at all times in order to function properly. The main cylinder includes a reservoir for a reserve supply of fluid. This automatically keeps the system full of fluid as long as there is a reserve supply in the reservoir. Should the reservoir become empty or the hydraulic system be opened at any point, air will enter the system and affect the efficiency of the brakes. When this occurs the hydraulic system must be bled. See "Bleeding Hydraulic System."

**Care.** The Chevrolet braking system requires very little care; however, the system should be checked occasionally for indications of fluid leak. If leaks are found the necessary repairs should be made at once.



**Fig. 52—Hydraulic Brake  
Main Cylinder Location**

The main cylinder inspection plug in the left side of floor board should be removed and the top of main cylinder cleaned carefully (fig. 52). The filler cap should be removed and if the fluid is low in the reservoir, it should be filled to

a point about ½" from the top of reservoir with G. M. Super No. 11C Hydraulic Brake fluid. Check the filler cap to see that the vent holes are open. Install filler cap and inspection plug.

## **BLEEDING HYDRAULIC SYSTEM**

Only G. M. Hydraulic Brake Fluid Super No. 11C should be used when bleeding brakes.

The hydraulic brake system must be bled whenever a pipe line has been disconnected, when a leak has allowed air to enter the system or at any time the system has been opened. For satisfactory brake operation the system must be completely free of all air.

Bleeding should be accomplished by one of two methods, pressure or manual. Bleeding should be done on the longest line first. On all except the 1½, 2 and 2½ ton models, the proper sequence is left rear, left front, right rear and right front. On the 1½, 2 and 2½ ton, the proper sequence is Hydrovac slave cylinder, Hydrovac valve bleeder valve, left rear wheel, right rear wheel, left front wheel and right front wheel.

#### **Pressure Bleeding (Except 1½, 2 and 2½ Ton)**

1. Clean all dirt from top of main cylinder and remove filler plug.
2. Connect hose from bleeder tank to main cylinder filler plug opening and open valves at both ends of hose.

**NOTE:** Make sure fluid in tank is up to petcock above outlet and that tank is charged with 20 pounds air pressure.

3. Remove bleeder valve screw and screw bleeder hose into bleeder valve, placing other end of hose in a container having sufficient fluid to cover end of hose.
4. Open bleeder valve by turning ¾ turn in a counterclockwise direction and watch flow of fluid at end of bleeder hose.
5. Close bleeder valve tightly as soon as bubbles stop and fluid flows in a solid stream.
6. Remove bleeder hose and install bleeder valve screw in bleeder valve.
7. Repeat above operations at each wheel.

#### **Pressure Bleeding (1½, 2 and 2½ Ton)**

1. Back off adjustment all the way on upper shoe on both rear wheels.
2. Clean all dirt from top of main cylinder, remove filler cap from main cylinder and fill the reservoir to the top of filler plug opening.
3. Connect pressure bleeder to main cylinder and open valve in the bleeder tank line.

**NOTE:** The bleeder tank should be charged with 25-35 pounds air pressure and must be kept within this range during the bleeding operation. The end of the bleeder tube must be in a bleeder jar or bottle and covered with fluid while performing all bleeding operations.

4. Connect bleeder tube to hydrovac bleeder valve No. 1, Figure 59, open bleeder valve and bleed until all air bubbles disappear (approximately ½ pint of fluid). Close bleeder valve.

5. Connect bleeder tube to hydrovac bleeder valve No. 2, Figure 59, open bleeder valve and bleed until all air bubbles disappear. Close bleeder valve.

6. Connect bleeder tube to front, rear wheel cylinder on left side, open bleeder valve and bleed until all air bubbles disappear (approximately  $\frac{1}{2}$  pint of fluid). Close bleeder valve.

7. Connect bleeder tube to front, rear wheel cylinder on right side, open bleeder valve and bleed until all air bubbles disappear. Close bleeder valve.

8. Connect bleeder tube to left front wheel cylinder, open bleeder valve and bleed until all air bubbles disappear. Close bleeder valve.

9. Connect bleeder tube to right front wheel cylinder, open bleeder valve and bleed until all air bubbles disappear. Close bleeder valve.

10. Adjust upper shoe on each rear wheel with pressure tank still connected. Push down hard on the brake pedal several times to centralize the shoes.

11. Disconnect pressure tank and readjust all brake shoes.

12. Apply approximately 75 lbs. pressure on the brake pedal and check the pedal clearance from the metal toe board to the forward edge of the pedal pad. This clearance should be a minimum of 5 inches. If reserve is less than 5 inches, re-bleed hydrovac and rear brakes in the sequence outlined above.

### **Manual Bleeding**

1. Clean all dirt from top of main cylinder and remove filler plug.

2. Install adapter and automatic filler J-713.

3. On all models except  $1\frac{1}{2}$ , 2 and  $2\frac{1}{2}$  ton, remove bleeder valve screw and screw bleeder tube into bleeder valve. On  $1\frac{1}{2}$ , 2 and  $2\frac{1}{2}$  ton models, connect bleeder tube to hydrovac bleeder valve No. 1, Figure 59. Place end of tube in a container having sufficient fluid to cover end of tube.

4. Open bleeder valve approximately  $\frac{3}{4}$  of a turn, depress the brake pedal a full stroke and allow it to return slowly making sure the end of the bleeder tube is under the surface of the liquid in the container. Continue operating the pedal, refilling the jar at the master cylinder when necessary, until liquid containing no air bubbles emerges from the bleeder tube. Close bleeder valve.



5. On all models except 1½, 2 and 2½ ton follow bleeding operations as outlined in Steps 4 through 7 under "Pressure Bleeding (Except 1½, 2 and 2½ Ton)." On 1½, 2 and 2½ ton models follow bleeding operations as outlined in Steps 5 through 12 under "Pressure Bleeding (1½, 2 and 2½ Ton)," using the automatic filler in lieu of the pressure tank.

## **BRAKE ADJUSTMENT**

(½, ¾ and 1 ton, front and rear)

(1½ and 2 ton, front).

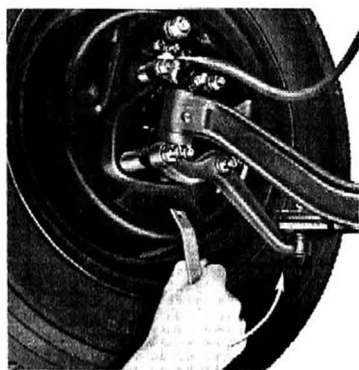
1. Raise truck until wheels rotate freely.

2. On ½, ¾, and 1 ton models only, disconnect parking brake cables from parking brake cross shaft outer lever (see Step 2 of "Parking Brake Adjustment"). This precaution should be taken to eliminate possibility of brake shoes dragging in drum due to misadjustment of parking brake cables.

3. Remove adjusting hole covers on all four wheels. Expand brake shoes by turning adjusting screw until a light drag is felt on the brake drum (fig. 53).

**NOTE:** Moving outer end of tool toward center of wheel expands shoes.

4. On ½ ton models turn the adjusting screw 7 notches in opposite direction. On all remaining models turn adjusting screw in opposite direction just enough to eliminate drag.



*Fig. 53—Adjusting Front Brakes*

5. Replace adjusting hole covers.

6. On ½, ¾ and 1 ton models, after adjustment of foot brakes, set parking brake in the fully released position, connect parking brake cables, and adjust parking brake.

**2½ ton front)**

1. Jack up wheels and use ⅝" wrench to rotate cam stud until shoe drags slightly, then rotate cam stud in opposite direction, moving wrench from 7° to 10° (1" to 1½" at end of 8" wrench) to insure proper running clearance.

**NOTE:** Turning cam stud in direction of forward wheel rotation expands shoe.

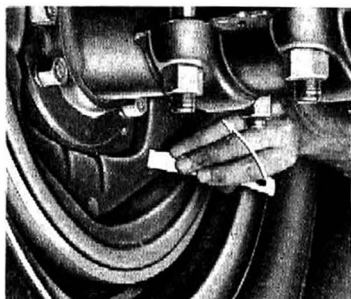


2. Repeat adjustment on other cam stud to adjust second brake shoe.

3. Repeat operation on other wheel.

**(1½, 2 and 2½ ton rear)**

1. Jack rear wheels clear of floor and remove adjusting hole covers from flange plate (two at each wheel).



**Fig. 54—Adjusting 1½ and 2 Ton Rear Brakes**

2. Turn rear adjusting screw (fig. 54) until a moderate dragging contact is felt on the brake drum and then back off 3 notches.

**NOTE:** Moving outer end of adjusting tool toward center of wheel expands shoe.

3. Turn front adjusting screw until a light dragging contact is felt on the brake drum and then back off 3 notches. Install covers.

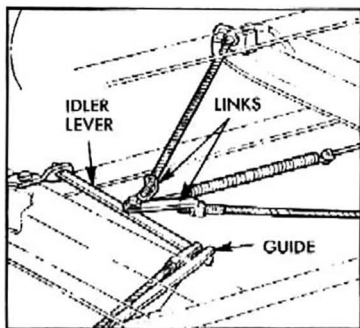
4. Repeat above operations on the other rear wheel.

**Parking Brake Adjustment (Rear Wheel Type).** The parking brake adjustment should be checked after each service brake adjustment.

1. Set parking brake lever in fully released position and check clearance between rear of idler lever and end of slot in guide. If necessary, tighten nuts on forward cable at idler lever to obtain approximately ¼" clearance.

2. Pull hand brake lever back four notches from full released position. Loosen cable nuts at rear of idler lever links and pull cables out of conduits by hand as far as possible. Tighten nuts at front of links, then tighten rear nuts.

3. Pull back hand lever until a heavy drag is felt at one wheel. Check other wheel for drag and if any difference is noted, loosen the tight wheel until equal drag is obtained.



**Fig. 55—Parking Brake Adjustment—  
½ and ¾ Ton**

4. Pull back hand lever a total of nine notches. Brakes should lock so neither wheel can be turned by hand. If more than nine notches are required to lock brakes, check service brake adjustment.

### Parking Brake Adjustment (Band Type)

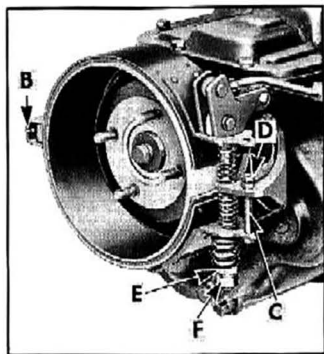


Fig. 56—Propeller Shaft Brake—  
(Band Type)

1. Set hand brake lever in fully released position and, if necessary, adjust pull rod so lower edge of both cams are flat against the band end. Turn up anchor screw "B" (fig. 56) until there is .010"-.015" clearance between lining and drum.

2. Draw up adjusting bolt "C" until there is .020" clearance between drum and lower end of band. Tighten lock nut "D."

3. Turn up adjusting nut "E" until there is .020" clearance between drum and upper end of band. Tighten lock nut "F."

### Parking Brake Adjustment (Shoe Type)

1. Set hand brake lever in the fully released position.

2. Loosen lock nut "D" and draw up adjusting bolt "A" (fig. 57) to secure clearance between outer shoe facing and brake drum of .010"-.015" measured at a point directly above bolt "A." Then hold bolt and tighten lock nut securely.

3. Loosen lock nut "C" and draw up nut "B" to secure .010"-.015" clearance between inner shoe facing and brake drum. Then hold nut "B" and tighten lock nut "C" securely.

4. Recheck both facing-to-drum clearances.

**Brake Pedal Clearance.** Loosen nut on eccentric adjusting bolt

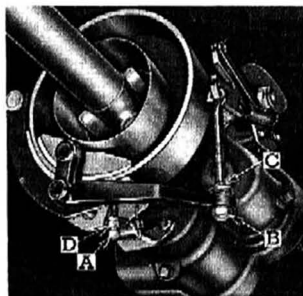
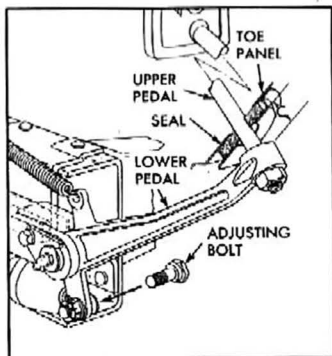


Fig. 57—Propeller Shaft Brake—  
(Shoe Type)



**Fig. 58—Brake Pedal Clearance Adjustment**

models and is available as optional equipment on all models.

The Hydrovac (fig. 59) consists of three operating units built into one assembly; namely, the control valve assembly, the vacuum power cylinder and the brake hydraulic cylinder.

With this system the engine vacuum is used to greatly increase the hydraulic pressure to the brake wheel cylinders. This provides unusual braking efficiency with comparatively light pedal pressure.

**Care.** Lubricate the vacuum cylinder according to instructions in the Lubrication Section.

The vacuum connections between the engine and the hydrovac should be checked for damage and the connections tightened occasionally. On  $\frac{1}{2}$ ,  $\frac{3}{4}$  and 1 ton models, the Hydrovac air cleaner should be removed, disassembled, cleaned and oiled at least twice a year and more frequently when driving on dusty roads.

## AIR-OVER HYDRAULIC AND FULL-AIR BRAKES

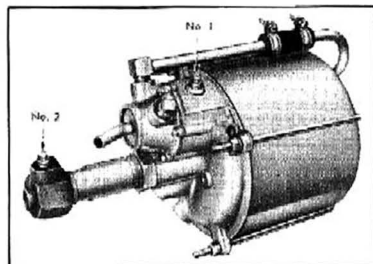
An air-over hydraulic (Air Pak) system is optional on all  $2\frac{1}{2}$  ton trucks and a full-air system is optional on series 9000, 10000 except tandem models. These systems use compressed

(fig. 58) and rotate bolt in direction required to obtain correct clearance "C" between upper corner of lower pedal and seal. Tighten nut and re-check clearance.

Clearance "C" should be  $1\frac{3}{4}$ " on L.C.F. models and  $1\frac{1}{16}$ " on other models except Forward Control.

## HYDROVAC

The Hydrovac is standard equipment on the 2 and  $2\frac{1}{2}$  ton



**Fig. 59—Hydrovac**

air maintained by an engine mounted and driven two-cylinder compressor. A single 900 cu. in. air storage tank supplies air to the air-over hydraulic brake unit, and two air storage tanks supply air to the control valve in the full-air system.

**Care.** Lubricate the air cylinder and the air compressor idler pulley bearing according to instructions in the Lubrication section. The compressor is engine lubricated and requires no special maintenance. All line connections should be checked for leaks and tightened if required.

## SPRINGS AND SHACKLES

**Front Springs and Shackles.** All Chevrolet trucks use leaf type front springs which are shackled at the rear on L.C.F. and Forward Control models and at the front on all other models. Plate type shackles with threaded bushings and bolts are used on all except 2½ ton L.C.F. models, which use clevis type shackles with plain bushings and pins with lock bolts. Springs are attached to hangers with bolts on all except 2½ ton models which use a pin with lock bolt.

**Rear Springs and Shackles.** All models (except tandem axle models) have leaf type rear springs with the shackle at the rear end of the spring. The ½ and ¾ ton use a plate type shackle with threaded bushings while all other models use a clevis type shackle and heavy shackle pins with lock bolts.

Some models use a two-stage type rear spring to provide better riding qualities when lightly loaded and proper support for heavy loads. Some models that are to be subjected to heavy loads are equipped with auxiliary springs which mount above the regular springs and contact brackets on the frame member when handling heavy loads.

Tandem axle models use a walking beam type suspension system with 2-stage spring piles.

**Care.** Keep the spring to axle "U" bolts and the shackle bolts properly tightened. Lubricate the shackles and hangers according to instructions in the Lubrication Section.

## ELECTRICAL SYSTEM

The electrical system consists of the following units—generator, combined voltage and current regulator, starting motor, storage battery, distributor, ignition lock, ignition coil, ammeter, gasoline gauge, horn, lamps, switches, wiring and miscellaneous parts.

The ignition switch, coil, distributor and other miscellaneous

parts making up the "Ignition System" were previously covered.

**BATTERY.** A 12-volt storage battery is located under the hood on the forward side of the dash panel. The batteries used in school buses are 11 plate 72 ampere hour capacity, all other models use a 9 plate 53 ampere hour capacity battery.

**Care**—Liquid level in the battery should be checked at least every 2,000 miles or once every two weeks. If the liquid level is found to be low, water should be added to each cell until the liquid level rises to the bottom of the vent well. **Do not overfill!** Distilled water, or water passed through a "demineralizer" should be used for this purpose in order to eliminate the possibility of harmful impurities being added to the electrolyte. **Do not add any substance to the electrolyte except water.**



Fig. 60—Battery Mounting

Batteries give off highly combustible hydrogen gas when charging and for some time after. Also, avoid getting battery acid on clothing or other fabrics.

In freezing weather the vehicle must be driven after adding water to properly mix it with the electrolyte and prevent freezing. It is also important to keep the battery in a fully charged condition in cold weather as a discharged battery will freeze at a little below the freezing point of water (32 degrees F.).

The state of charge in the battery should be checked regularly. Your Chevrolet dealer will gladly perform this service; however, if it is inconvenient to take the truck to the dealer the state of charge in the battery can be checked by using a battery hydrometer as shown in Fig. 61. The hydrometer

**CAUTION:** Never allow an electric spark or flame near the battery, particularly the vent caps. Before working around the battery, ground the vehicle to reduce possibility of static spark. Bat-

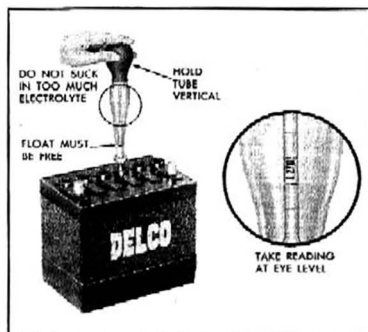


Fig. 61—Testing Battery with Hydrometer

reading of a fully charged battery will be from 1.260 to 1.280 at 80° F.

**BATTERY TERMINALS.** The battery cable terminals must be kept clean and tight. Loose or corroded terminals cause hard starting and discharged batteries. When corrosion appears on the terminals they should be cleaned in a solution of baking soda and water or ammonia and water. After cleaning, the top of the battery should be flushed off with clear water. To reduce the tendency of the terminals to corrode, coat them with petrolatum. Saturate terminal washer with engine oil every 1000 miles.

**STARTER.** The starting motor on all models except L.C.F., Forward Control and automatic transmission equipped units is designed to incorporate a manual shift drive mechanism which assures positive engagement of the starting motor pinion with the flywheel until the engine is started.

**Care.** Keep the terminal nut tight on the starting switch. Check the switch mounting screws, solenoid mounting and starting motor bolts periodically to make sure they remain tight.

**GENERATING SYSTEM.** The generating system consists of the generator, voltage and current regulator, ammeter and necessary wiring.

The ammeter indicates whether current is being supplied to or removed from the battery.

The generator used on all Chevrolet trucks has sufficient capacity to supply all regularly used accessories and keep the battery fully charged providing the system is in good condition.

The generator output is controlled by the combined current and voltage regulator and circuit breaker. The circuit breaker points close when the generator voltage is higher than the battery voltage so that current can flow to the battery, and open when the generator voltage is lower than the battery voltage to prevent the battery from discharging through the generator.

The current regulator protects the generator by preventing the generator output from exceeding 23 to 27 amperes.

The voltage regulator protects the battery and electrical system by preventing the generator voltage from exceeding 13.8 to 14.8 volts.

**Care.** The connections in the entire generating circuit must be

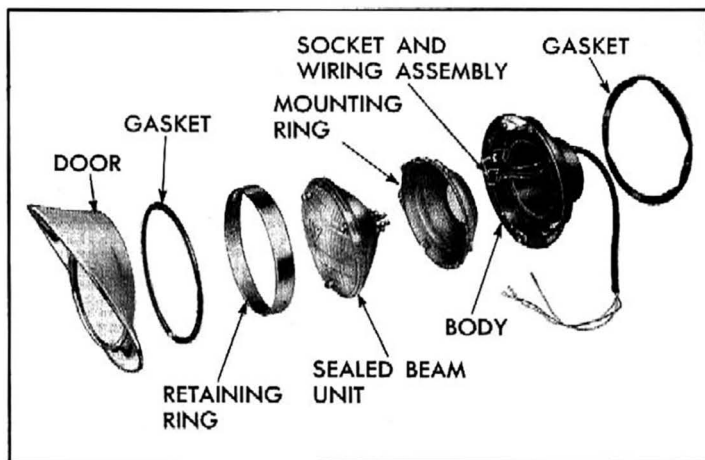
kept tight and free from corrosion or anything that will cause high resistance in the circuit. The generator should be lubricated according to instructions in the Lubrication Section.

**Maintenance.** The maintenance services on the generating system, especially the voltage and current regulator, require the use of special equipment not generally available to the vehicle owner.

**NOTE:** Never tamper with the voltage and current regulator unless you have special testing equipment and are trained to do this kind of work.

At periodic intervals of approximately 5000 miles, the terminals, external connections and wiring, mounting, belt and pulley should be checked. The commutator and brush inspection can be made through the openings in the commutator end frame. If the commutator is dirty or if the brushes are badly worn, it is best to have your Chevrolet dealer make the necessary test and repairs.

**LAMPS.** All Chevrolet trucks are equipped with "Sealed Beam" headlight units in which the light source, the reflector, lens and gasket are all assembled in a securely sealed unit. Figure 62 shows the component parts of the light. With this sealed unit dirt or moisture cannot enter the assembly; therefore, it retains its light reflecting ability indefinitely.



**Fig. 62—Headlamp Parts**

The sealed beam headlamp features the T-3 headlamp bulb unit and a redesigned retaining and mounting ring. The retaining ring is held to the lamp body by a spring eliminating the screw attachment previously used. This feature simplifies sealed beam replacement as well as eliminates confusion that existed between retaining ring screws and adjusting screws.

### Sealed Beam Unit Replacement

1. Remove three headlamp door retaining screws and remove door with gasket.

2. Unhook the spring from the retaining ring (fig. 63) and, holding sealed beam unit, retaining ring and mounting ring as an assembly, remove mounting ring from adjusting screws. **DO NOT disturb the adjusting screws.**

3. Pull assembly forward, disconnect connector plug from sealed beam unit (fig. 64) and remove assembly.



Fig. 63—Unhooking Retaining Ring Spring



Fig. 64—Disconnecting Plug

4. While holding mounting ring, lift retaining ring as shown in figure 65 to release the retaining ring from the retaining ring tab opposite spring attachment of assembly. Remove retaining ring and sealed beam unit from mounting ring. While lifting retaining ring caution should be exercised to avoid damage to molded lugs on face of T-3 headlamp unit.

5. Place new sealed beam unit in mounting ring and position unit so that "top" inscription on front of glass is to the right of retaining ring tab. Then index molded lugs on back of sealed beam unit to indentations in mounting ring.

6. Index hole in retaining ring over tab on mounting ring (fig. 65).

7. Connect plug to sealed beam unit (fig. 64) and engage mounting ring adjusting screw tabs with vertical and horizontal adjusting screws.





**Fig. 65—Releasing Retaining Ring**

8. Engage spring of lamp body in spring slot in retaining ring.

9. Install headlamp door with gasket and install retaining screws.

Proper aiming of these powerful lights is most important to assure sufficient illumination of the highway without blinding other motorists. When light aiming is necessary it is advisable to contact a Chevrolet

dealer who has special equipment for this purpose.

The parking, stop and tail lamp bulbs may be reached by removing the rim clamp screws, rim and lens. Push the bulb in slightly and turn it counterclockwise as far as possible and pull it out of socket. Push new bulb into place and turn it clockwise to lock it. Install rim and lens.

**THERMAL CIRCUIT BREAKERS AND FUSE.** One circuit breaker in the lighting circuit for the headlamps and tail lamps eliminates a fuse in the circuit. When current load is too heavy, the circuit breaker opens and closes rapidly, reducing current sufficiently to protect wiring until the cause is eliminated. A second circuit breaker in the circuit for other lamps prevents short circuit or overload in that circuit from disabling the headlamp circuit. Both circuit breakers are incorporated in the light switch. A fuse in the light switch protects the instrument panel light circuit.

## **TUBELESS TIRES**

Tubeless tires mounted on one piece full drop center rims are used on all 1957 Chevrolet trucks. These tires have a safety inner liner which, if punctured, tends to cling to the penetrating object forming a partial seal until the object is removed from the tire. It is therefore now even more essential to conduct a periodic pressure check plus a visual tire inspection to detect imbedded objects which might otherwise go unnoticed and cause serious casing damage.

## Inspection for Leaks

1. With wheel assembly removed from vehicle, inflate the tire to recommended operating pressure.
2. Lower assembly into water tank or run water over tire to locate leak. Mark location of leak with crayon.

## DEMOUNTING AND MOUNTING

All tubeless tires used on Chevrolet trucks with the exception of the 6.50-16 and 6.70-15 sizes (used on  $\frac{1}{2}$  ton models) should be demounted and mounted as described in this section. The 6.50-16 and 6.70-15 tires may be demounted using present tire machines or standard tire irons following the same procedure employed in servicing tube type tires.

**CAUTION:** A hammer or tools with sharp edges should never be used to demount or mount tubeless tires as damage to rim flange or tire sealing head may result.

### Demounting (all except 6.50-16 and 6.70-15 tires)

1. Remove valve core to completely deflate tire. With tire lying flat on floor, loosen beads from rim seats by walking around on tire with heels at points close to rim. With wide side of rim down, apply tire lubricating soap to top bead. With stops toward rim, insert spoon ends of two tire irons about 10" apart. While standing on tire to hold bead in gutter, pull one tool toward center of rim (fig. 66).



Fig. 66



Fig. 67



Fig. 68



Fig. 69



Fig. 70

2. Hold one iron in position with foot and pull second iron toward center of rim. Progressively work bead off rim, taking additional bites if necessary (fig. 67).

3. Stand assembly in vertical position. Lubricate second bead. At top of assembly insert straight end of tire iron between bead and back flange of rim at about a 45 degree angle (fig. 68).

4. Turn iron so that it is perpendicular to rim. Pry second bead off (fig. 69).

#### Mounting (all except 6.50-16 and 6.70-15 tires)

1. Inspect rim to insure bead seats are clean and smooth. Then place rim on floor with wide side down and lubricate first bead of tire and upper bead seat of rim (fig. 70).

2. Push first bead into well of rim and onto rim as far as possible. Using straight end of tire iron and with stop resting on rim flange, work remaining section of first bead over rim (fig. 71).

3. Hold second bead in well by standing on tire. When necessary, push section of bead into rim well and anchor with vise-grip pliers by pinching pliers on rim flange. Using spoon end of tire iron with stop toward rim, work progressively around bead



Fig. 71

using small bites until bead slips over flange onto rim base. If necessary, insert second tire iron and lubricate last 6" of bead before completing mounting (fig. 72).

4. Check valve to be certain that hex nut at the valve base is tight. Inflate tire to recommended operating pressure. Check assembly for air leaks.

#### Mounting (6.50-16 and 6.70-15 tires)



Fig. 72

1. Use present tire machines or standard tire irons following the same procedure used in mounting tube type tires, however, extreme care must be exercised to prevent injury to the sealing bead when forcing tire over the rim. A light application of rubber lubricating soap on the last  $\frac{1}{3}$  of each bead circle to be mounted will ease mounting.

2. With tire beads still unseated, rotate tire on wheel so that balance mark on tire lines up with the valve stem.

3. Start tire beads into the rim bead seats as follows:

If a tire mounting machine is being used, lift the tire high in the rim forcing the top tire bead against the top rim flange seating the top bead. The lower bead will be seated by the tire weight.

When a tire mounting machine is not being used beads may be seated by holding the tire and wheel assembly in a vertical position and bouncing on the floor at various points about the tire circumference.

4. Install valve core and inflate tire with quick "shots" of air to firmly seat the sealing beads.

5. Check assembly for air leaks, then reduce tire pressure to that recommended for vehicle operation.

**NOTE:** If a seal cannot be effected in the foregoing manner with the rush of air, it can be accomplished by applying a mounting band or heavy sash cord to the circumference of the tire and then tightening with a tire iron.

## **REPAIRING TUBELESS TIRES**

There are several methods of repairing tubeless tires advocated by the tire manufacturers, all of which are based on their combined experience. Methods which have proven very satisfactory for repair of punctures not exceeding 3/16" diameter are outlined in this section, while repair procedure for punctures in excess of 3/16" are not herein covered due to the wide variance in the type of repair required for injuries of this magnitude.

Chevrolet recommends the use of either of two types of patches for repair of tubeless tires. Both types are currently available from the tire manufacturers and are merchandised in kits which also contain the necessary hand tools and other material for a complete tire repair job.

The recommended patch types are:

### **1. The Self-Vulcanizing Cold Patch.**

No heat is required in the use of this patch as vulcanization is chemically performed upon application of the patch. This type of patch has been found to give excellent results on all standard production type tubeless tires, but should under no circumstance be used on puncture sealing tires incorporating a soft sealant material in the inner liner.

### **2. The Hot Patch.**

This patch contains its own fuel and vulcanization takes place when this fuel is ignited. Previous experience has shown this type patch to be very satisfactory for repair of all types of tubeless tires.

Prior to the application of either of the above mentioned patches the tire injury must first be cleaned and filled as described in the following paragraphs:



Fig. 73

### Cleaning Injured Area

1. Probe the injury with an awl or hand rasp to remove puncturing object and other foreign material (fig. 73).

2. Thoroughly clean inside of tire around injury with carbon tetrachloride or a commercial rubber solvent. Allow the cleaned area to dry.

**CAUTION:** If rubber solvent is used, flammable vapors should afterward be blown from the tire with compressed air.

### Filling the Injury

Either of the following methods may be used to fill the injury:

1. With a tire sealing gun, fill injury with liquid rubber by holding gun tip firmly against puncture and forcing sealant through to opposite side of tire (fig. 74).



Fig. 74

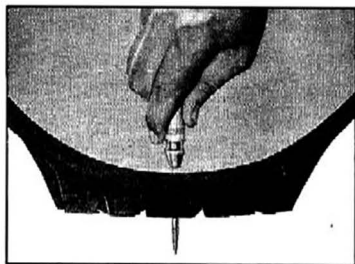


Fig. 75

2. Using a tubeless tire awl, fill injury with rubber strip as follows:

(a) Clean awl needle and dip in self-vulcanizing fluid and from inside of tire, force needle through puncture until point extends beyond tread (fig. 75).

(b) Remove detachable handle from needle. Cut  $\frac{1}{8}$ " strip of filler rubber and place in awl needle hole with end of rubber strip extending beyond needle. Pull needle through tire with pliers (fig. 76).

**NOTE:** Filler rubber will now be secure in puncture.

(c) Using the awl, pack into the tire as much as possible of the

protruding portion of the rubber strip. Cut off excess length flush with tire surface.

### Applying the Patch

With the application of either of the preferred type patches described below, it is necessary to first use a fine wire brush to thoroughly roughen an area about the injury slightly larger than the patch to be applied.



Fig. 76

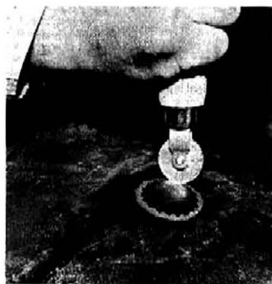


Fig. 77

cially at edges, to permit good adhesion and easy removal of paper cover from patch (fig. 77).

**NOTE:** The tire may be put into service immediately.

### 2. The Hot Patch.

- (a) Remove backing from patch and carefully center patch over injury. Place clamp over patch and tighten only finger tight (fig. 78).

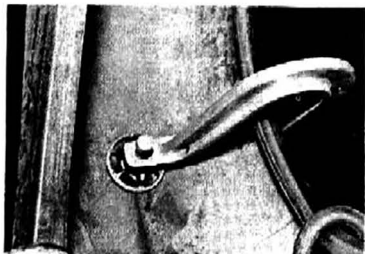


Fig. 78

- (b) Ignite patch and allow to cool for at least 15 minutes or until cool to touch. Carefully remove metal pan and ashes remaining in tire.

**NOTE:** The tire may be put into service immediately.

**CAUTION:** If wire brush is mounted in power tool, care must be exercised not to cut through inner liner.

### 1. The Self Vulcanizing Cold Patch.

- (a) Apply self-vulcanizing cement over buffed area and allow to dry for a minimum of five minutes.

**NOTE:** This time factor is important.

- (b) Remove foil backing from patch base and place patch over injury. Stitch down firmly, espe-

## Replacing Valves

The "snap-in" type rubber valve as used with the 6.50-16 and 6.70-15 tires should always be replaced by a new valve once it is removed from a rim.

To remove a "snap-in" valve from rim, force a small screw-driver blade between valve and edge of hole. Then, while prying on valve to start groove out of hole, push the valve back through the rim.

The one piece "snap-in" valve is installed as follows:

1. Clean all foreign material from area around valve hole in rim with steel wool.
2. Use water or a very light film of tire mounting soap to lubricate outside of valve.

**CAUTION: Do not use oil, grease or hand soap.**

3. Insert valve from inside rim and work into snapped in position using either a valve installer tool or a pair of slip-joint pliers with one jaw placed on the rim and the other jaw on base of the valve assembly.

**CAUTION: Do not attempt to hammer the valve into rim.**

**TIRE ROTATION.** The rotation of truck tires will minimize tire trouble and produce longer tire life. Without rotation, accelerated and irregular tire wear on any particular tire will not be spread out over the entire set, and replacement frequency is boosted.

No definite tire rotation formula is applicable to all trucks because of the wide range of usage. However, certain fundamentals, mixed with experience and observation, will assist the trucker in reducing tire costs.

A rotation sequence that moves the front tires to the rear is a general recommendation. Due to different loading conditions on the wheels, new tires which are broken in on the front wheels usually produce the greatest overall tire life.

Six wheel trucks with unmatched tires may be rotated by crossing front tires and by exchanging inner and outer tire positions on the dual wheels.

The outer tire on a dual wheel will skid or drag on a turn because of the difference in the turning radii of the inner and outer tires. This results in faster wear of the outer tire. In general, the tire with the largest diameter or least wear should be at the outside of each dual wheel. In addition, certain truckers



have found when trucks are operated continuously on high crown roads an increase in air pressure of from 5 to 10 pounds in the outside tire of each dual produces maximum tire life.

## TIRE INFLATION

Tire pressures should be checked at least once a week and inflated according to the following table. If payload distribution or special equipment is such as to impose heavy loads on the front axle, inflation of front tires should be increased accordingly but should not exceed pressure shown for rear tires.

**Avoid underinflation** to prevent rim bruises, excessive heat, and irregular or rapid wear.

**Avoid overinflation** to prevent tire ruptures, hard riding, irregular or rapid wear and reduction of skid resistance.

**Valve Caps** should always be installed and tightened firmly to prevent dust and water entering and damaging valve seats. The caps also act as an air seal.

**Inflation Table**

Tire Size and Ply Rating Tubeless	Tube Type	Inflation Pressure Pounds Per Square Inch	
		Front	Rear
6.50-16-6		26	36
6.70-15-4		28	28
6.70-15-6		28	30
7-17.5-6		25	45
7-22.5-6		40	40
7-22.5-8			65
8-17.5-6		25	45
8-17.5-8		30	60
8-19.5-6		40	55
8-19.5-8		40	50
8-22.5-8	7.50-20-8	40 <sup>1</sup>	65
8-22.5-10	7.50-20-10	40	75
9-22.5-10	8.25-20-10	40	70
9-22.5-12	8.25-20-10	—	80
10-22.5-10	9.00-20-10	50	70
11-22.5-12	10.00-20-12	55	75

<sup>1</sup>On Tandem Axle Models use 65 lbs. per sq. in.

## CHAPTER III

### LUBRICATION

In your selection of the proper brand of oil, it is desirable to consider the reputation of the refiner or marketer. He is responsible for the quality of his product and his reputation is the truck owner's best indication of quality.

### ENGINE

Your use of the proper engine oil is one of great importance in obtaining maximum performance and satisfaction from your truck.

The engine crankcase as delivered to you is filled with a high grade oil of the type designated "Service MS" (see "Types of Oil" below). It also contains a special "Anti-Wear" additive to assist in better "mating" of the moving parts. This oil should be drained after 1000 miles driving. During the first 1000 miles, check the oil level frequently and if it is necessary to add oil, use one of the "light body" oils described under "Oil Viscosity Numbers" in this Chapter. At the end of the 1000 mile period, drain crankcase when hot and refill with an oil of the viscosity number and type recommended.

**Types of Oil**—In service, crankcase oils may form sludge and varnish and under some conditions corrosive acids unless protected against oxidation. To minimize the formation of these harmful products and to supply the type of oil best suited for various operating conditions, the oil industry markets several types of crankcase oils. These types have been defined by the American Petroleum Institute as follows:

"Service ML" (Comparable to former Regular Type)—Generally suitable for use in internal combustion engines operating under light and favorable service conditions.

"Service MM" (Comparable to former Premium Type)—Oil having the characteristics necessary to make it generally suitable for use in internal combustion engines operating under moderate to severe service conditions which present problems

of sludge, varnish or bearing corrosion control when crank-case oil temperatures are high.

"Service MS" and "Service DG" (Comparable to former Heavy-Duty Types)—Oils having the characteristics to make them generally suitable for use in internal combustion engines operating under unfavorable or severe types of service conditions.

For maximum engine protection under all driving conditions, oils designated "For Service MS" or "For Service DG" are recommended.

**Oil Viscosity Numbers**—SAE Viscosity Numbers indicate only the viscosity or body of the oil, that is, whether an oil is a light or a heavy body oil, and do not consider or include other properties or quality factors.

The lower SAE Viscosity Numbers, such as SAE 5W and SAE 10W which represent the light body oils, are recommended for use during cold weather to provide easy starting and instant lubrication. The higher SAE viscosity Numbers such as SAE 20 and SAE 20W, which represent heavier body oils, are recommended for use during warm or hot weather to provide improved oil economy and adequate lubrication under high operating temperatures.

Oils are available which are designed to combine the easy starting characteristics of the lower SAE Viscosity Number with the warm weather operating characteristics of the higher SAE Viscosity Number. These are termed "multi-viscosity oils," SAE 5W-20, and SAE 10W-30.

The following chart will serve as a guide for the selection of the correct SAE Viscosity Number for use under different atmospheric temperature ranges, and suggests the appropriate SAE Viscosity Numbers when multi-viscosity oils are used.

If the lowest anticipated temperature during the interval in which the oil will remain in the crank-case, is:	The following SAE Viscosity oils are RECOMMENDED:	Multi-Viscosity oils RECOMMENDED:
32°F	SAE 20W or SAE 20	SAE 10W-30
0°F	SAE 10W	SAE 10W-30
Below 0°F	SAE 5W	SAE 5W-20

**NOTE:** For sustained high speed driving, when the prevailing daylight temperature is above 90°F, S.A.E. 30 may be used.



Fig. 79—Oil Gauge Rod in Pan

## Maintaining Crankcase Oil Level.

The Oil Gauge Rod (fig. 79) is marked "Full" and "Add Oil." These notations have broad arrows pointing to the level lines.

The oil level should be maintained between the two lines; neither going above the "Full" line nor under the "Add Oil" line.

Check the oil level frequently and add oil when necessary.

**Oil Pressure.** If the oil pressure registers abnormally high after the engine is thoroughly warmed up, an inspection should be made to ascertain if the oil lines and passages are restricted.

**When to Change Crankcase Oil.** To insure continuation of best performance, low maintenance cost and long engine life, it is necessary to change the crankcase oil whenever it becomes contaminated with harmful foreign materials. Under normal driving conditions, draining the crankcase and replacing with fresh oil every 2000 miles is recommended.

Under the driving conditions described in the following paragraphs, it may become necessary to drain the crankcase oil more frequently.

Frequent long runs at high speed, or continuous driving with heavy loads, with the resultant high engine operating temperatures, may oxidize the oil and may result in the formation of sludge and varnish. While no definite drain periods can be recommended under these conditions, they should be more frequent than under normal driving conditions.

Driving over dusty roads or through dust storms introduces abrasive material into the engine. Carburetor air cleaners decrease the amount of dust that may enter the crankcase. The frequency of draining depends upon severity of dust conditions and no definite draining periods can be recommended, but should be more frequent than under normal driving conditions.

Short runs in cold weather, such as city driving, and excessive idling, do not permit thorough warming up of the

engine and water may accumulate in the crankcase from condensation of moisture produced by the burning of the fuel. Water, in the crankcase, may freeze and interfere with proper oil circulation. It also promotes rusting and may cause clogging of oil screens and passages. Under normal driving conditions this water is removed by the crankcase ventilator. But if water accumulates it should be removed by draining the crankcase as frequently as may be required.

It is always advisable to let the engine reach normal operating temperature before draining the crankcase. The benefit of draining is, to a large extent, lost if the crankcase is drained when the engine is cold as some of the suspended foreign material will cling to the sides of the oil pan and will not drain out readily with the slower moving oil. Flushing the crankcase with oils or solutions other than a good grade of SAE 10W engine oil is not recommended.

## **CRANKCASE DILUTION**

Probably the most serious phase of engine oil deterioration is that of crankcase dilution, which is the thinning of the oil by fuel vapors leaking by the pistons and rings and mixing with the oil.

Leakage of fuel, or fuel vapors, into the oil pan mostly occurs during the "warming-up" period, when the fuel is not thoroughly vaporized and burned.

**Automatic Control Devices to Minimize Crankcase Dilution.** The Chevrolet engine is equipped with automatic devices which aid greatly in minimizing the danger of crankcase dilution.

Rapid warming up of the engine is aided by the thermostatic water temperature control, which automatically prevents circulation of the water in the cooling system until it reaches a predetermined temperature.

Thermostatic heat control on the exhaust manifold, during the warming-up period, automatically directs the hot exhaust gases against the center of the intake manifold, greatly aiding the proper vaporization of the fuel.

Sparing use of the choke reduces danger of raw, or unvaporized fuel entering the combustion chamber and leaking into the oil reservoir.

An efficient crankcase ventilating system drives off fuel vapors and aids in the evaporation of the raw fuel and water which may find its way into the oil reservoir.

**Control by Truck Owner Under Abnormal Conditions.** Ordinarily the above automatic control devices will minimize, or eliminate, the danger of crankcase dilution.

However, there are abnormal conditions of service when the truck owner must aid in the control of crankcase dilution.

Short runs in cold weather, such as city driving and excessive idling, do not permit the thorough warming up of the engine nor the efficient operation of automatic control devices. It is recommended that the oil be changed more often when the truck is subjected to this type of operation.

Poor mechanical condition of the engine, such as scored cylinders, poor ring fit, "sloppy" or loose pistons, faulty valves, and poor ignition will increase crankcase dilution. Keep your truck in good mechanical condition.

Poor fuels which contain portions hard to ignite and slow to burn will increase crankcase dilution. Use good fuel.

**Water in Crankcase.** Serious lubrication troubles may result in cold weather due to an accumulation of water in the oil pan.

A slight amount of exhaust gases pass the pistons and rings, even under the most favorable conditions, and cause the formation of water in the oil pan, in a greater or lesser degree, until the engine becomes warm. When the engine becomes thoroughly warm, the crankcase will no longer act as a condenser and all of these gases will pass out through the crankcase ventilator system.

Short runs in cold weather, such as city driving, will aggravate this condition.

**Corrosion.** Practically all present day engine fuel contains a small amount of sulphur which, in the state in which it is found, is harmless; but this sulphur on burning, forms certain gases, a small portion of which is likely to leak past the pistons and rings and reacting with water, when present in the crankcase, form corrosive acids.

As long as the gases and the internal walls of the crankcase are hot enough to keep water vapor from condensing, no harm will result; but when an engine is run in low temperatures, moisture will collect and unite with the gases formed by combustion; thus, acid will be formed and is likely to cause serious etching or pitting. This etching, pitting or corrosion, when using fuel containing considerable sulphur, manifests

itself in excessively rapid wear on piston pins, camshaft bearings and other moving parts of the engine, and can be traced back to the character of fuel used, or a condition of the engine, such as excessive blow-by or improper carburetor adjustment.

**OIL FILTER.** It is recommended that, under normal conditions, the filter cartridge be replaced at 4,000 mile intervals. Severe dust conditions may warrant replacing the cartridge at correspondingly lower mileages.

**GAS FILTER.** If the engine is equipped with a gas filter, the filter element should be replaced seasonally or at intervals of not more than 5,000 miles.

**WATER PUMP.** The permanently sealed ball bearing water pump does not require lubrication by the truck owner.

**STARTING MOTOR.** Starting Motor end frames are equipped with oil-less bearings which do not require lubricant.

**GENERATOR.** Every 1,000 miles, fill oil cup at end to the top with a light oil or engine oil.

**BATTERY.** Saturate battery terminal washer with engine oil every 1000 miles.

**DISTRIBUTOR.** On 6 cylinder models, turn down lubricant cup  $\frac{1}{2}$  turn every 1000 miles. Refill cup with chassis lubricant as necessary. Every 5000 miles, the distributor cap should be removed and  $\frac{1}{2}$  drop of light engine oil applied to breaker lever pivot and remove rotor and apply a small amount of Delco Ball Bearing and Cam Lubricant or high melting point wheel bearing lubricant on cam surface.

On 8-cylinder models, fill hinge cap oiler with light engine oil every 1000 miles. Every 5000 miles, the distributor cap should be removed and  $\frac{1}{2}$  drop of light engine oil applied to breaker lever pivot. Do not use any lubricant on cam lubricator wick, replace wick when contact points are replaced.

## **REAR AXLE AND CONVENTIONAL TRANSMISSION**

### **Recommended Lubricants.**

**Rear Axles**—S.A.E. 90 "Multi-Purpose" Gear Lubricant.

**Power Divider (Tandem Axle Trucks)**—April 1 to October 1 (approximately)—SAE 140 Straight Mineral Oil Lubricant, or SAE 140 "Multi-Purpose" Gear Lubricant. October 1 to April 1 (approximately)—SAE 90 Straight Mineral Oil Lubricant, or SAE 90 "Multi-Purpose" Gear Lubricant.

**Caution: Straight Mineral Oil Gear Lubricants must not be used in Hypoid Rear Axles or 2-Speed Rear Axles.**

**Conventional Transmissions—S.A.E. 90** Straight Mineral Oil Gear Lubricant, or S.A.E. 90 "Multi-Purpose" Gear Lubricant.

The S.A.E. 90 viscosity grade is recommended for "year-around" service. However, when extremely low temperatures are encountered for protracted periods during the winter months, the S.A.E. 80 viscosity grade may be used.

**Rear Axle Electric Shift Unit—SAE 10** engine oil.

**"Multi-Purpose" Gear Lubricants.** Gear lubricants that will give satisfactory lubrication for all types of operation have been developed. These lubricants are known as "Multi-Purpose" Gear Lubricants.

"Multi-Purpose" Gear Lubricants may be used in conventional truck transmissions and steering gears.

"Multi-Purpose" Gear Lubricants must be manufactured under carefully controlled conditions and the lubricant manufacturer must be responsible for the satisfactory performance of his product. His reputation is your best indication of quality.

**Lubricant Additions—Transmission.** The lubricant level in the housing should be checked periodically and with unit at operating temperature, lubricant should be level with bottom of filler plug hole.

It is recommended that any additions required to bring up the lubricant level be made, using the same type of lubricant as in the housing.

**Lubricant Additions—Rear Axle Electric Shift Unit.** Every 10,000 miles or 3 months, whichever comes first, fill to level of filler plug hole.

**Lubricant Changes—Rear Axle.** The rear axle in your truck, as you receive it, is filled with a special lubricant which should be drained at the end of 1000 miles and refilled with a SAE 90 "Multi-Purpose" Gear Lubricant.

While seasonal changes of the rear axle lubricants are not required, it is recommended that you have the housing drained every 10,000 miles and refilled with SAE 90 "Multi-Purpose" Gear Lubricant.

**Lubricant Changes—Power Divider.** For best results the lubricant in these units should be changed every 5000 miles and



seasonally as recommended in previous paragraph under "Recommended Lubricants".

## HYDRA-MATIC TRANSMISSION

Every 1,000 miles the fluid level should be checked and fluid added as described below when necessary. Use only "Automatic Transmission Fluid Type A" bearing an AQ-ATF number. This fluid is available in sealed containers at all Authorized Chevrolet Dealers and oil company service stations. A good grade of 10W engine oil may be used temporarily in emergencies but should be replaced with Automatic Transmission Fluid Type A, as soon as possible.

Every 25,000 miles the transmission fluid should be drained and refilled as described herein.

**Checking Hydra-Matic Fluid.** Check transmission fluid level with transmission at normal operating temperature. Otherwise, the engine and transmission must be warmed to operating temperature. Engine must be running while checking or adding fluid.

1. Set parking brake and move control lever into (N) position; then start engine. Run engine at idling speed until engine and transmission have reached normal operating temperature.

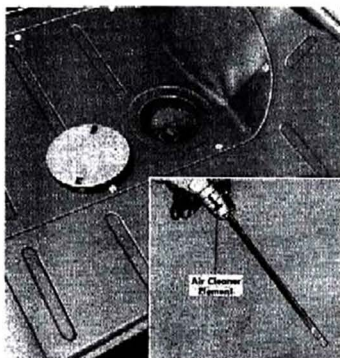


Fig. 80—Checking Hydra-Matic Transmission Fluid Level

2. Lift access hole cover plate on floor pan (fig. 80) to give access to oil breather and level indicator assembly.

3. Remove all dirt or gravel from area around indicator and transmission case. With engine still idling, remove indicator from case. Wipe clean, re-insert, and carefully withdraw again.

**Exercise extreme care to prevent dirt from entering filler tube when checking fluid level. Add fluid (Step 4) only when level**

reaches the "L" mark (1 Qt. low) on the indicator.

4. With engine operating at normal idle, add sufficient Automatic transmission fluid to bring level to "F" (full) mark on indicator.

**CAUTION:** Fluid level should never be higher than "F" mark on indicator, when fluid is at operating temperature. An excessive amount of fluid will cause spinning drums to aerate fluid. Expanding fluid may then be forced out of case around indicator. Sufficient fluid may be lost to damage the transmission seriously.

5. Reinstall indicator and cover access hole with plate.

**Draining and Refilling the Hydra-Matic Transmission.** At the 25,000 mile interval the transmission should be drained and refilled. Approximately 8½ quarts\* of Automatic Transmission Fluid—Type A—are required to refill transmission after torus cover and oil pan have been drained. Drain oil immediately after operation, while fluid is still warm. Do not flush transmission after draining.

1. Turn flywheel until torus cover plug is at lowest point.



**Fig. 81—Drain Plugs on Transmission Without Cooler**

Remove torus cover drain plug (fig. 85) and thoroughly drain torus cover.

2. Remove oil pan drain plug (fig. 85) and thoroughly drain oil pan.

3. When drainage is completed install oil pan drain plug. Tighten drain plug to 35-45 foot-pounds torque.

4. Coat torus cover plug with sealer (Permatex No. 3) and install in torus cover. Tighten plug to 6-7 foot-pounds torque.

5. Remove oil breather and indicator assembly (see "Checking Hydra-Matic Fluid") and wipe it clean. Clean indicator cap air cleaner (fig. 84) in cleaning solvent.

6. Pour six\* quarts of "Automatic Transmission Fluid—Type A" into transmission. Be sure container and spout or funnel is clean.

7. Set parking brake and position control lever in "N" position and start engine. Run engine at idling speed for 3 to 5 minutes, to fill coupling.

8. With engine idling, then add sufficient fluid (approximately 2½ quarts) to bring oil level to "L" (low) mark on indicator. Continue to run engine until normal temperature is attained; then recheck fluid level to "F" (full) mark on indicator.

\* Add one additional quart if equipped with transmission oil cooler.

## POWERMATIC TRANSMISSION

Every 1000 miles the fluid level should be checked and fluid added as described below when necessary. Use Automatic Transmission Fluid—Type A, or Automatic Transmission Fluid—Type C. A good grade of 10W engine oil may be used temporarily in emergencies, but should be replaced with Automatic Transmission Fluid as soon as possible.

Every 5,000 miles the transmission fluid should be drained and refilled as described herein.

**Checking Powermatic Fluid**—Check transmission fluid level with transmission at normal operating temperature, otherwise the engine and transmission must be warmed to operating temperature. Engine must be running while checking or adding fluid.

1. Start engine, set parking brake and move control lever into (D) position. Run engine at idling speed until engine and transmission have reached normal operating temperature.

2. Remove any dirt or gravel from area around indicator in right side of engine compartment. With engine idling remove indicator from case. Wipe clean, reinsert and carefully withdraw again.

Exercise extreme care to prevent dirt from entering filler tube when checking fluid level.

Add fluid only when level reaches L mark (1 qt. low) on the indicator.

3. With engine operating at normal idle add sufficient "Automatic Transmission Fluid—Type A" or "Type C"—to bring level to full mark on indicator.

**CAUTION:** Fluid level should never be higher than "F" mark on indicator when fluid is at operating temperature. An excessively full transmission will result in aeration of the fluid. The expanding fluid may then be forced out of the filler tube. Sufficient fluid may be lost to seriously damage the transmission.

4. Reinstall indicator.

**Draining and Refilling the Powermatic Transmission** — At the 5,000 mile interval under normal operating conditions for off highway or urban operation the transmission should be drained and refilled and the oil filter should be replaced. Changing oil and replacing filter may be done at 10,000 mile intervals for normal highway operation. Approximately 9 qts. of fluid are required to refill the transmission after the oil pan has been drained. Drain oil immediately after operation —while fluid is still warm. Do not flush transmission after draining.

1. **Loosen** filter cover and allow to drain thoroughly. Do not completely remove cover with transmission full or oil will gush out in considerable quantity.

2. When drainage is complete, remove cover and filter and install new filter. Tighten filter cover to 15-20 ft. lbs. torque.

3. Pour eight quarts of Automatic Transmission Fluid into transmission. Be sure container and spout or funnel is clean.

4. Set parking brake and position control lever in (N) position and start engine. Move control lever to (D) position. Run engine at idling speed and complete filling.

5. To complete filling—with engine idling, add sufficient fluid (approximately 1 qt.) to bring oil level to "L" (low) mark on indicator. With service brake set, shift transmission through all ranges. Continue to run engine until normal temperature is attained; then recheck fluid level to full mark on indicator.

## **UNIVERSAL JOINT**

All universal joints are the needle bearing type equipped with lubrication fittings and should be lubricated every 1000 miles with "Multi-purpose" Gear Lubricant.

## **PROPELLER SHAFT SLIP JOINTS**

Propeller shaft slip joints equipped with a lubrication fitting are used on all model trucks except the 3100 and the 3200, 3400 and 3600 equipped with standard production three-speed transmission.

These fittings should be lubricated every 1000 miles with chassis lubricant.

## **PILLOW BLOCK (Tandem Axle Truck)**

The pillow block mounted on the forward axle on tandem axle trucks is equipped with a lubrication fitting. Chassis lubricant should be used at this point every 1,000 miles.

## FRONT WHEEL BEARINGS

$\frac{1}{2}$ ,  $\frac{3}{4}$ , 1 and  $1\frac{1}{2}$  Ton. Front wheels are equipped with ball bearings and should be packed with a high-melting point front wheel bearing lubricant.

**L.C.F. 2 and  $2\frac{1}{2}$  Ton.** Front wheels are equipped with tapered roller bearings and should be packed with a soft smooth lubricant.

**CAUTION:** "Long fibre" or "Viscous" type of lubricants should not be used.

Due to the weight of the tire and wheel assembly it is recommended that they be removed from hub before lubricating bearings to prevent damage to oil seal. Then remove the front wheel hub to lubricate the bearings. The bearings should be thoroughly cleaned before repacking with lubricant. Do not pack the hub between the inner and outer bearing assemblies, or the hub cap, as this excessive lubrication results in the lubricant working out into the brake drum and linings.

In mounting the front hubs, great care must be taken not to damage seals and to properly adjust bearings, (see page 49).

## REAR WHEEL BEARINGS

The rear wheel bearings receive their lubrication from the rear axle. When installing bearings which have been cleaned, repack with a smooth type grease. Rear wheel bearings on  $2\frac{1}{2}$  ton models should be repacked with wheel bearing lubricant every 10,000 miles.

## CHASSIS

For chassis lubrication, consult the lubrication chart, which shows the points to be lubricated and how often the lubricant should be applied.

The term "Chassis Lubricant" as used in this manual, describes a semi-fluid lubricant designed for application by commercial pressure gun equipment. It is composed of mineral oil (usually 300 to 500 second Saybolt Universal viscosity at 100° F.) combined with approximately 8% soap, or soaps, which are insoluble in water.

**SPRING SHACKLES AND SPRING BOLTS.** The spring shackles and spring bolts are equipped with pressure gun lubrication fittings, and should be lubricated with lubricant recommended under "Chassis Lubrication."

## **BRAKE AND CLUTCH PEDALS**

On Forward Control models the clutch pedal is lubricated from a pressure gun lubrication fitting in the end of the shaft and the brake pedal is also equipped with a lubrication fitting. On the other truck models, the brake and clutch pedals have separate fittings in the ends of the shafts, except the 8 and 10,000 series which have a fitting in the clutch pedal support casting. On all Forward Control and L. C. F. models, the clutch idler support is equipped with a lubrication fitting. Use chassis lubricant at these points.

## **HYDROVAC and AIR OVER HYDRAULIC BRAKES**

The Hydrovac and air over hydraulic assemblies are equipped with lubrication plugs in the closed end of the shell approximately 1" from the bottom of the cylinder. Fill to plug level with Bendix Vacuum Cylinder Oil or Delco shock absorber fluid at 10,000 mile intervals or each six month period, especially prior to the start of cold weather.

## **AIR COMPRESSOR IDLER PULLEY BEARING**

Lubricate the air compressor idler pulley bearing every 10,000 miles with high melting point wheel bearing lubricant as follows:

1. Loosen bolts securing idler pulley bracket to free pulley from fan belt.
2. Remove nut and lock washer from pulley shaft and remove pulley from bracket.
3. Remove snap ring securing bearing cover in pulley. Tap pulley shaft to remove shaft and cover.
4. Check that bearing is installed with sealed side toward outer edge of pulley. Pack bearing with wheel bearing lubricant and install pulley shaft, cover and snap ring.
5. Install pulley on bracket, reposition pulley to fan belt and adjust fan belt tension.

## **CONVENTIONAL STEERING GEAR**

The steering gear is filled at the factory with an all-season gear lubricant. Seasonal change of this lubricant is unnecessary and the housing should not be drained. Whenever required, additions should be made using "Multi-Purpose" or "Universal" steering gear lubricants.

## **POWER STEERING GEAR AND PUMP**

Service gear box every 1000 miles in the same manner as prescribed for the standard steering gears. In addition check fluid in power steering pump reservoir—while hot—and make additions using Automatic Transmission Fluid—Type A—required to bring level to full mark on filler cap dipstick.

## **TRANSMISSION CONTROLS**

The steering column manual shift mechanism on  $\frac{1}{2}$  Ton and  $\frac{3}{4}$  Ton models equipped with 3 speed transmission is factory lubricated and should not require periodic lubrication. However, should the shifting effort become noticeably greater, remove the cap on the gearshift control box and fill box with a soft smooth grease.

The shifting, retarding brake (powermatic), and throttle valve linkages for both Hydra-Matic and Powermatic transmissions are lubricated at the factory and should not require further lubrication. Also the Tandem Axle Power Divider shift and declutching controls are lubricated at the factory and should not require periodic servicing.

However, if effort required to manipulate any of these controls becomes noticeably greater, contact points between rods, idlers, bell cranks and supports may be lubricated with light engine oil.

## **GENERAL NOTE**

Low-Cab-Forward trucks are provided with an access panel in the dash panel which may be removed to service the distributor. All other engine compartment lubrication points are readily accessible after raising the hood.

## **½ TON TRUCK LUBRICATION**

1. Front Spring Shackle (2 each side) .....1000 mile
2. Generator (2 oil cups) (see page 77) .....1000 mile
3. King Pin (2 each side) .....1000 mile
4. Front Wheel Bearing (see page 83) .....10,000 mile
5. Tie Rod (1 each side) .....1000 mile
6. Steering Connecting Rod (1 each end) .....1000 mile
7. Steering Gear (see page 84) .....1000 mile
8. Distributor (see page 77) .....1000 mile
9. Front Spring Bolt (1 each side) .....1000 mile
10. Air Cleaner (see page 27) .....
11. Throttle Bell Crank.....1000 mile
12. Brake and Clutch Pedals (see page 84) .....1000 mile
13. Transmission (see pages 77-81) .....
14. Universal Joint (1 each—see page 82) .....1000 mile
15. Rear Spring Bolt (1 each side) .....1000 mile
16. Rear Axle (see page 77) .....
17. Rear Spring Shackle (2 each side) .....1000 mile
18. Parking Brake Cable .....1000 mile
19. Propeller Shaft Slip Joint—3-speed Heavy Duty  
and 4-speed transmission (see page 82) .....1000 mile

**NOTE:** Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

### **Lubricant Key for Figure 82**

**CL Chassis Lubricant**

**EO Light Engine Oil**

**WB Wheel Bearing Lubricant**

**SG Steering Gear Lubricant**



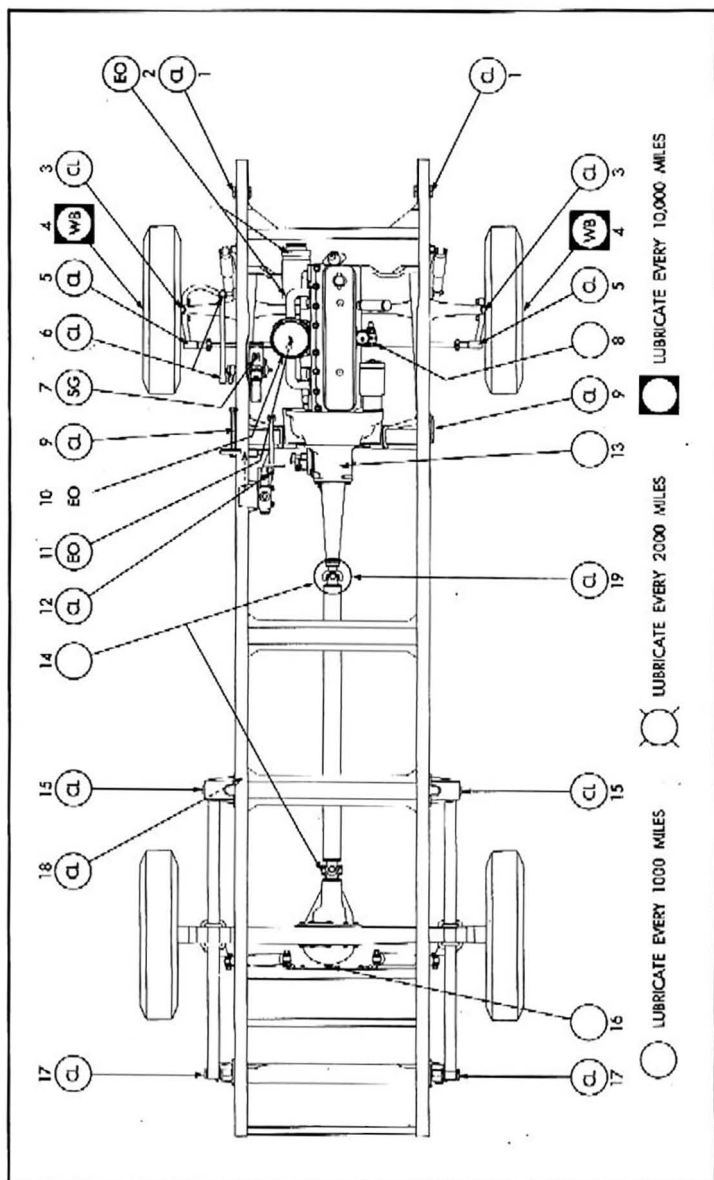


Fig. 82--1/2 Ton Lubrication Chart

## ¾ TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) .....1000 mile
2. Generator (2 oil cups) (see page 77) .....1000 mile
3. King Pin (2 each side) .....1000 mile
4. Front Wheel Bearings (see page 83) .....10,000 mile
5. Tie Rod (1 each side) .....1000 mile
6. Steering Connecting Rod (1 each end) .....1000 mile
7. Steering Gear (see page 84) .....1000 mile
8. Distributor (see page 77) .....1000 mile
9. Front Spring Bolt (1 each side) .....1000 mile
10. Air Cleaner (see page 27) .....
11. Throttle Bell Crank .....1000 mile
12. Brake and Clutch Pedals (see page 84) .....1000 mile
13. Transmission (see pages 77-81) .....
14. Universal Joint (1 each—see page 82) .....1000 mile
15. Rear Spring Bolt (1 each side) .....1000 mile
16. Rear Axle (see page 77) .....
17. Rear Spring Shackle (2 each side) .....1000 mile
18. Parking Brake Cable .....1000 mile
19. Propeller Shaft Slip Joint (Hydra-Matic transmission) .....1000 mile
20. Propeller Shaft Slip Joint (3-speed Heavy-Duty and 4-speed transmission) .....1000 mile
21. Universal Joint (all models except those equipped with standard 3-speed or Hydra-Matic transmission)—(1 each—see page 82) .....1000 mile

**NOTE:** Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

### Lubricant Key for Figure 83

**CL** Chassis Lubricant

**EO** Light Engine Oil

**WB** Wheel Bearing Lubricant

**SG** Steering Gear Lubricant

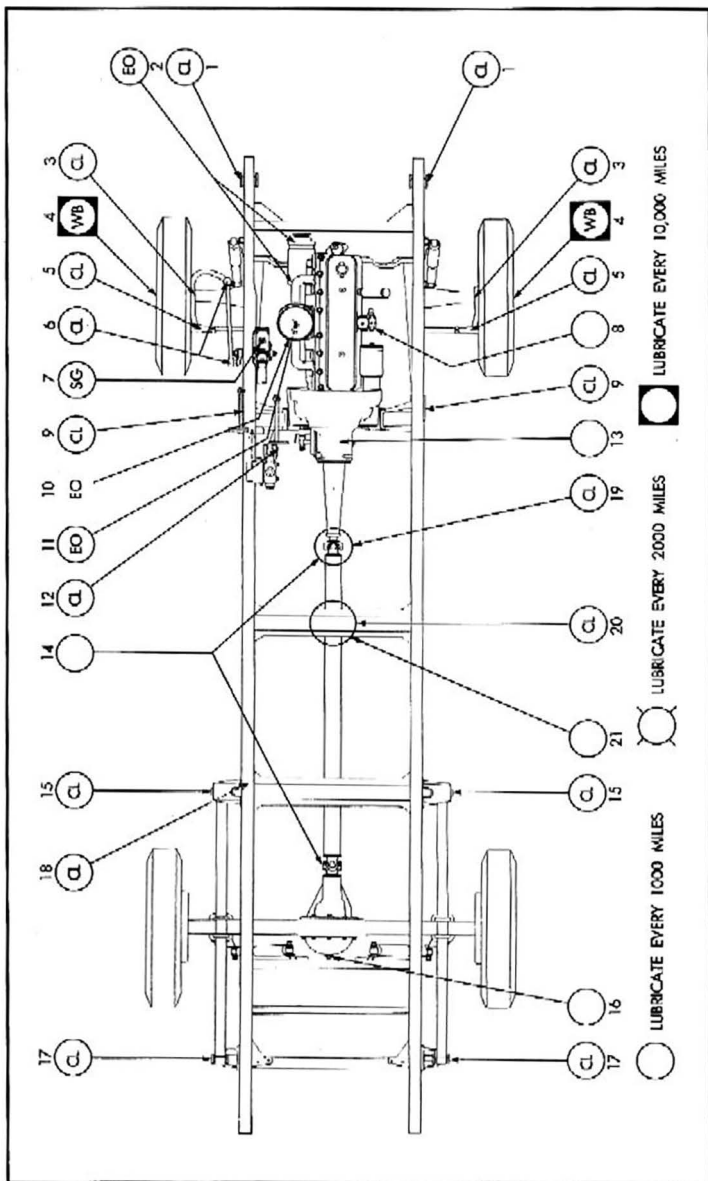


Fig. 83—3/4 Ton Lubrication Chart

## 1 TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) .....1000 mile
2. Generator (2 oil cups) (see page 77) .....1000 mile
3. King Pin (2 each side).....1000 mile
4. Front Wheel Bearings (see page 83) .....10,000 mile
5. Tie Rod (1 each side).....1000 mile
6. Steering Connecting Rod (1 each end).....1000 mile
7. Steering Gear (see page 84) .....1000 mile
8. Distributor (see page 77) .....1000 mile
9. Front Spring Bolt (1 each side) .....1000 mile
10. Air Cleaner (see page 27) .....
11. Throttle Bell Crank .....1000 mile
12. Brake and Clutch Pedals (see page 84) .....1000 mile
13. Transmission (see pages 77-81) .....
14. Universal Joint (1 each—see page 82) .....1000 mile
15. Rear Spring Bolt (1 each side) .....1000 mile
16. Rear Axle (see page 77) .....
17. Rear Spring Shackle (2 each side) .....1000 mile
18. Propeller Shaft Slip Joint .....1000 mile
19. Parking Brake Operating Lever.....1000 mile

**NOTE:** Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

### Lubricant Key for Figure 84

**CL** Chassis Lubricant

**EO** Engine Oil

**WB**—Wheel Bearing Lubricant

**SG**—Steering Gear Lubricant

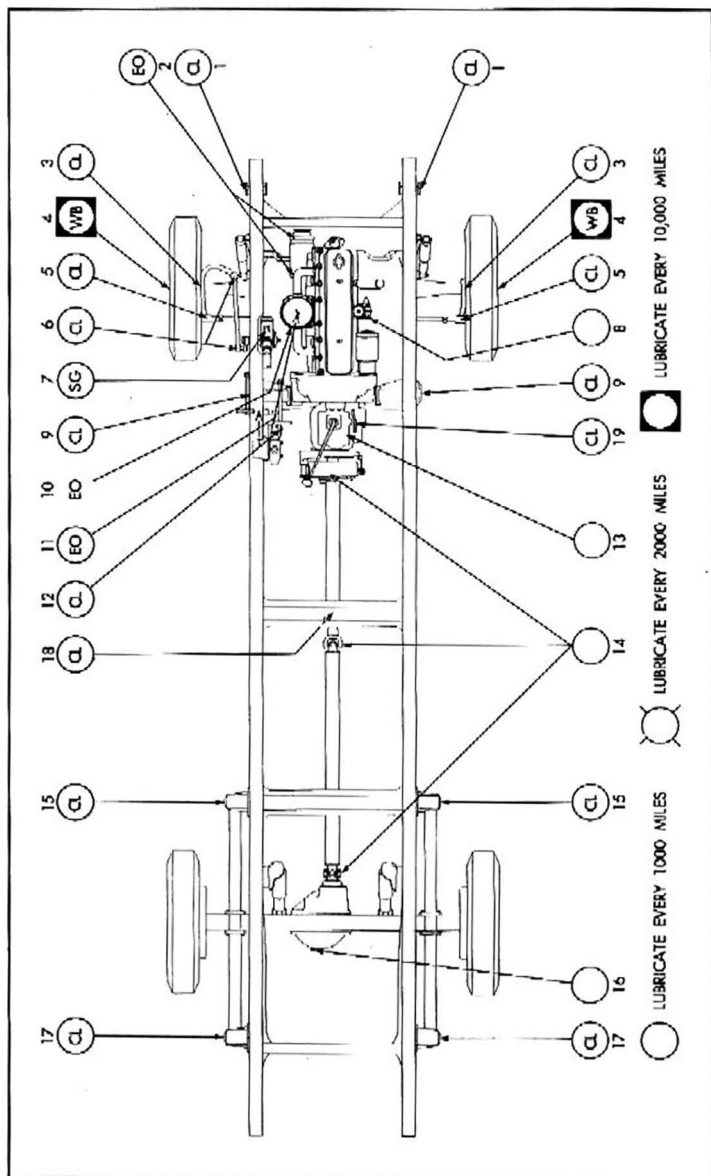


Fig. 84-1 Ten Lubrication Chart

## 1½, 2 AND 2½ TON TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) .....	1000 mile
2. Generator (2 oil cups) (see page 77) .....	1000 mile
3. King Pin (2 each side) .....	1000 mile
4. Front Wheel Bearings (see page 83) .....	10,000 mile
5. Tie Rod (1 each side) .....	1000 mile
6. Steering Connecting Rod (1 each end) .....	1000 mile
7. Steering Gear (see page 84) .....	1000 mile
8. Distributor (see page 77) .....	1000 mile
9. Front Spring Bolt (1 each side) .....	1000 mile
10. Air Cleaner (see page 27) .....	
11. Throttle Bell Crank .....	1000 mile
12. Brake and Clutch Pedals (see page 84) .....	1000 mile
13. Transmission (see pages 77-81) .....	
14. Universal Joint (1 each) (see page 82) .....	1000 mile
15. Rear Spring Bolt (1 each side) .....	1000 mile
16. Rear Axle (see page 77) .....	
17. Rear Spring Shackle (2 each side) .....	1000 mile
18. Propeller Shaft Slip Joint .....	1000 mile
19. Hydrovac or Air Over Hydraulic .....	10,000 mile
20. Parking Brake Operating Lever .....	1000 mile
21. 2½ Ton (H.D.) Rear Wheel Hub Bearings .....	10,000 mile

**NOTE:** Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

### Lubricant Key for Figure 85

**CL** Chassis Lubricant

**EO** Engine Oil

**WB**—Wheel Bearing Lubricant for Ball Bearings  
Soft Smooth Grease for Roller Bearings

**SG**—Steering Gear Lubricant

**BL**—Bendix Vacuum Cylinder Oil

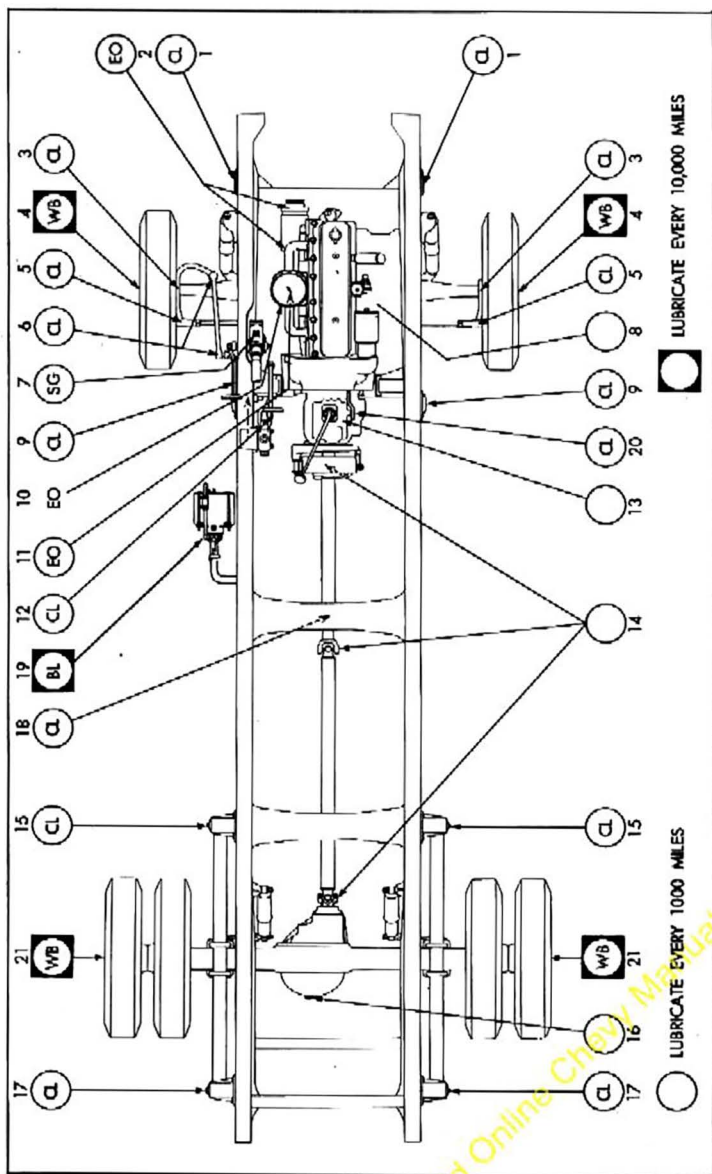


Fig. 85—1½, 2 and 2½ Ton Lubrication Chart

## L.C.F. TRUCK LUBRICATION

1. Front Spring Shackle (2 each side) .....1000 mile
2. Generator (2 oil cups) (see page 77) .....1000 mile
3. King Pin (2 each side).....1000 mile
4. Front Wheel Bearings (see page 83) .....10,000 mile
5. Tie Rods (1 each side).....1000 mile
6. Steering Connecting Rod (1 each end).....1000 mile
7. Steering Gear (see page 84) .....1000 mile
8. Distributor (see page 77) .....1000 mile
9. Front Spring Bolt (1 each side).....1000 mile
10. Air Cleaner (see page 27) .....
11. Throttle Bell Crank.....1000 mile
12. Brake and Clutch Pedals (see page 84) .....1000 mile
13. Transmissions (see pages 77-81) .....
14. Universal Joint (1 each) (see page 82) .....1000 mile
15. Rear Spring Bolt (1 each side).....1000 mile
16. Rear Axle (see page 77) .....
17. Rear Spring Shackle (2 each side).....1000 mile
18. Propeller Shaft Slip Joint.....1000 mile
19. Hydrovac or Air Over Hydraulic (see page 84) .10,000 mile
20. Parking Brake Operating Lever.....1000 mile

**NOTE:** Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

### Lubricant Key for Figure 86

**CL—Chassis Lubricant**

**EO—Engine Oil**

**WB—Soft Smooth Grease for Roller Bearings**

**SG—Steering Gear Lubricant**

**BL—Bendix Vacuum Cylinder Oil**



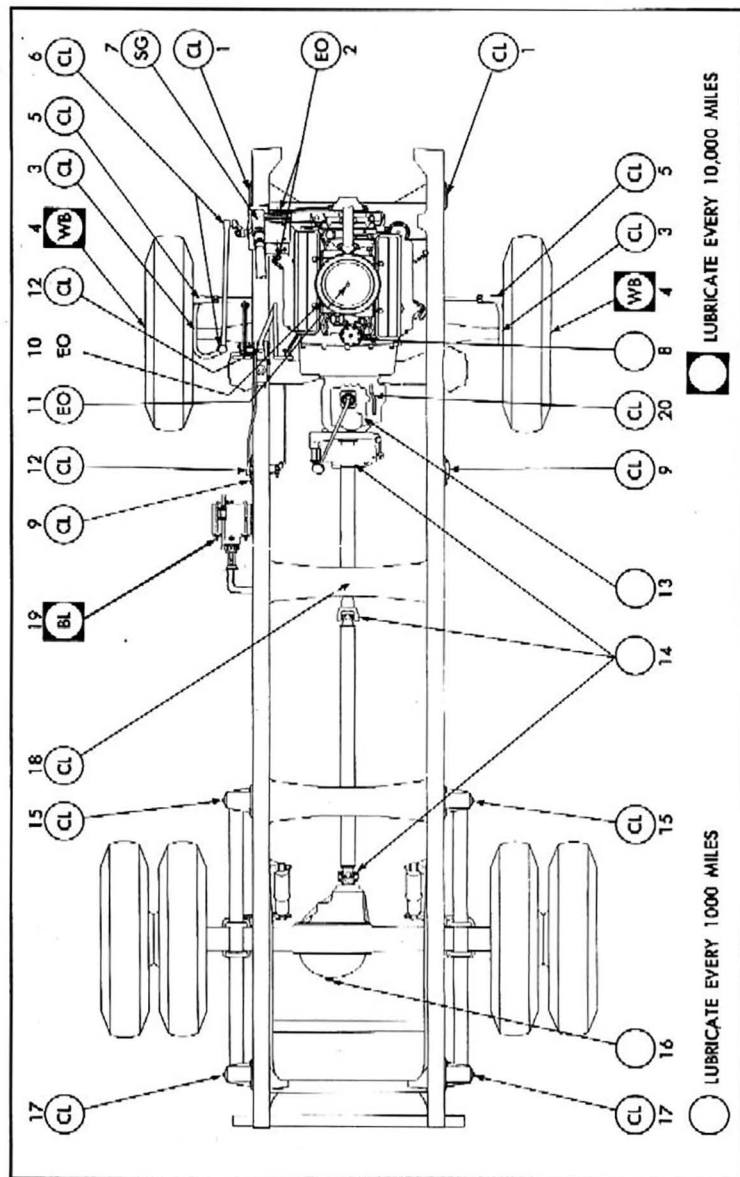


Fig. 86—L.C.F. Lubrication Chart

## TANDEM AXLE MODEL LUBRICATION CHART

1. Front Spring Shackle (2 each side) .....	1000 mile
2. Generator (2 oil cups) (see page 77) .....	1000 mile
3. King Pin (2 each side) .....	1000 mile
4. Front Wheel Bearings (see page 83) .....	10,000 mile
5. Tie Rod (1 each side) .....	1000 mile
6. Steering Connecting Rod (1 each end) .....	1000 mile
7. Steering Gear (see page 84) .....	1000 mile
8. Distributor (see page 77) .....	1000 mile
9. Front Spring Bolt (1 each side) .....	1000 mile
10. Air Cleaner (see page 27) .....	
11. Throttle Bell Crank .....	1000 mile
12. Brake and Clutch Pedals (see page 84) .....	1000 mile
13. Transmission (see pages 77-81) .....	
14. Universal Joints (1 each) (see page 82) .....	1000 mile
15. Power Divider (see page 77) .....	5000 mile
16. Rear Axle (see page 77) .....	
17. Pillow Block (see page 82) .....	1000 mile
18. Propeller Shaft Slip Joint .....	1000 mile
19. Hydrovac or Air Over Hydraulic (see page 84) ..	10,000 mile
20. Parking Brake Operating Lever .....	1000 mile

**NOTE:** Under severe service conditions it is recommended that chassis lubrication be performed at more frequent intervals than shown above.

### Lubricant Key for Figure 87

- CL** Chassis Lubricant
- EO** Light Engine Oil
- WB** Soft Smooth Grease for Roller Bearings
- SG** Steering Gear Lubricant
- BL** Bendix Vacuum Cylinder Oil

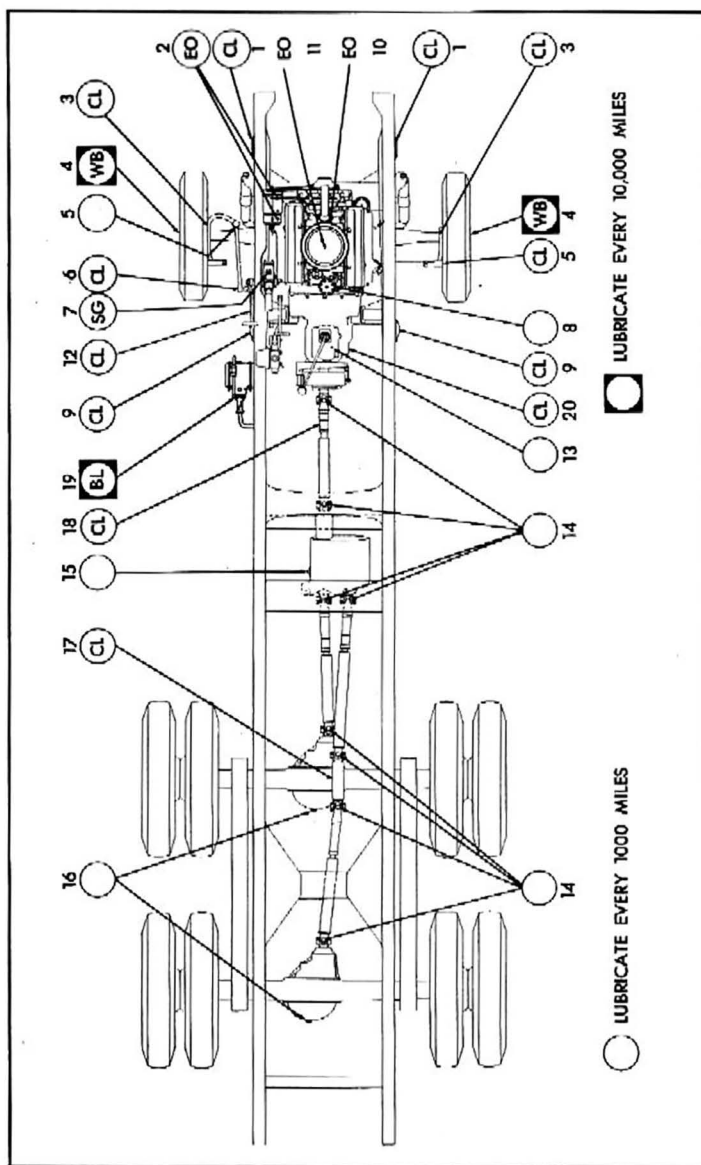


Fig. 87—Tandem Axle Model Lubrication Chart

# CHAPTER IV

## TECHNICAL DATA

**Vehicle Serial Number**—Stamped on plate located on left body hinge pillar on all models except flat face cowl which has plate located on left hand cowl inner panel.

**Engine Number**—Stamped on boss on right front side of 265 and 283 cu. in. V-8 engine cylinder block, on a machined surface on top outer edge of left cylinder bank of 322 cu. in. V-8 engine and on right side to the rear of ignition distributor on 6-cylinder block.

### UNIT CAPACITY CHART

<b>Engine</b>		2½-Ton Cab .....	21½ gal.		
Thriftmaster .....	5 qt.	School Bus .....	30 gal.		
Jobmaster .....	5 qt.	Forward Control Models			
Trademaster .....	4 qt.	104" Wheelbase .....	15½ gal.		
Taskmaster .....	5 qt.	125", 137" Wheelbase..	18 gal.		
Loadmaster .....	6 qt.	2-Ton .....	30 gal.		
<b>Transmission</b>		<b>Rear Axle</b>			
3-Speed .....	2 pt.	½-Ton .....	4½ pt.		
Overdrive .....	1 pt.	¾ and 1-Ton .....	6½ pt.		
Heavy-Duty 3-Speed ...	2¾ pt.	1½-Ton .....	14 pt.		
4-Speed .....	6¼ pt.	2-Ton Regular .....	19½ pt.		
5-Speed .....	9½ pt.	2½-Ton Regular .....	19 pt.		
Heavy-Duty 5-Speed ...	12 pt.	2-Speed .....	16 pt.		
Power-Divider .....	7 pt.	Heavy-Duty 2-Speed ...	18 pt.		
Hydra-Matic (Total) ...	9 qt.	<b>Brakes</b> .....	1 pt.		
*(Refill) .....	8½ qt.	<b>Air Cleaner</b>			
Powermatic (Total Dry) ..	19 qt.	Thriftmaster and			
(Refill) .....	9 qt.	Trademaster .....	1 pt.		
		Others .....	1 qt.		
<b>Gasoline Tank</b>		Oil Filter (Jobmaster) .....	2 qt.		
½, ¾, 1-Ton (Except		Oil Filter (V-8) .....	1½ qt.		
Cabs) .....	17 gal.				
1½, 2-Ton (Except Cabs)	18 gal.				
Cab Models (Except 2½-					
Ton) .....	17½ gal.				
		<b>*Add 1 qt. if equipped with trans-</b>			
		<b>mission oil cooler.</b>			
<b>Cooling System</b>					
	235	261	265	283	322
½, ¾, 1 Ton .....	17 qt.	—	17½ qt.	—	—
H.D. ....	17½	—	18	—	—
1½ Ton Special .....	17½	—	18	—	—
H.D. ....	18	—	18½	—	—
<b>5000 Series</b>					
4 or 5 Speed Trans. ...	—	—	—	18	—
H.D. ....	—	—	—	18½	—
Powermatic Trans. ....	—	—	—	21	—
<b>6000 Series</b>					
4 or 5 Speed Trans. ...	—	17	—	18	—
H.D. ....	—	—	—	18½	—
Powermatic Trans. ....	—	21	—	21½	—

# 7-8000 Series

4 or 5 Speed Trans. ....	—	—	23	—
H.D. and Powermatic .....	—	—	23½	—

# 9-10000

5 Speed Trans. ....	—	—	—	21½
H.D. and Powermatic ..	—	—	—	22

## LAMP BULB CHART

Location	C.P.	Bulb No.
Headlamp .....	50-40 watts	Scaled Beam
Parking Lamp .....	4	67
Tail and Stop Lamp .....	4-32	1034
Instrument Cluster .....	2	57
Ignition Switch .....	1	53
Dome Lamp .....	15	94
Headlamp Beam Indicator .....	1	53

## SPECIFICATIONS

### 6-Cylinder Engines

### Thriftmaster

### Jobmaster

Bore .....	3 <sup>9</sup> / <sub>16</sub> "	3 <sup>3</sup> / <sub>4</sub> "
Stroke .....	3 <sup>15</sup> / <sub>16</sub> "	3 <sup>15</sup> / <sub>16</sub> "
Displacement .....	235.5 cu. in.	261 cu. in.
Firing Order .....	1-5-3-6-2-4	1-5-3-6-2-4
Compression Ratio .....	8 to 1	7.8 to 1
Horsepower .....	30.4 (AMA)	33.7 (AMA)
	140 (Rated)	148 (Rated)
No. of Main Bearings .....	4	4

### V-8 Engines

### Trademaster

### Taskmaster

### Loadmaster

Bore .....	3 <sup>3</sup> / <sub>4</sub> "	3 <sup>7</sup> / <sub>8</sub> "	4"
Stroke .....	3"	3"	3.2"
Displacement .....	265 cu. in.	283 cu. in.	322 cu. in.
Firing Order .....	1-8-4-3-6-5-7-2	1-8-4-3-6-5-7-2	1-2-7-8-4-5-6-3
Compression Ratio .....	8 to 1	8 to 1	7.7 to 1
Horsepower .....	45 (AMA)	48 (AMA)	51.2 (AMA)
	155 (Rated)	160 (Rated)	195 (Rated)
No. of Main Bearings	5	5	5

## Transmission Ratios

Transmission	Reverse	First (low)	Second	Third	Fourth	Fifth	Sixth
3-Speed .....	2.94 to 1	2.94 to 1	1.68 to 1	Direct			
Overdrive .....	2.94 to 1	2.94 to 1	1.18 to 1	0.70 to 1			
H.D. 3-Speed .....	3.76 to 1	3.17 to 1	1.75 to 1	Direct			
4-Speed .....	6.78 to 1	7.06 to 1	3.58 to 1	1.71 to 1	Direct		
5-Speed .....	7.85 to 1	7.41 to 1	4.05 to 1	2.40 to 1	1.48 to 1	Direct	
H.D. 5-Speed .....	7.44 to 1	7.55 to 1	4.17 to 1	2.45 to 1	1.45 to 1	Direct	
Automatic (½ Ton) ..	4.30 to 1	3.82 to 1	2.63 to 1	1.45 to 1	Direct		
(¾, 1 and 1½ Ton) ..	6.11 to 1	4.71 to 1	3.03 to 1	1.56 to 1	Direct		
(2 and 2½ Ton) ...	6.04 to 1	5.3 to 1	3.8 to 1	2.69 to 1	1.94 to 1	1.39 to 1	Direct

**Rear Axle Ratio (semi-floating type) ... ½-Ton .....** 3.9 to 1  
**Overdrive ...** 4.11 to 1

## Rear Axle Ratios (Full-Floating Type)

$\frac{3}{4}$ -Ton .....	4.57 to 1	H.D. School Bus and
$\frac{3}{4}$ -Ton Forward		Tandem and 2-Ton
Control .....	5.14 to 1	(R.P.O.) .....
1-Ton .....	5.14 to 1	7.20 to 1
$1\frac{1}{2}$ -Ton .....	6.17 to 1	H.D. $2\frac{1}{2}$ -Ton (Except School
2 and $2\frac{1}{2}$ -Ton .....	7.20 to 1	Bus and Tandem .....

7.17 to 1

### 2-Speed Axles

$1\frac{1}{2}$ , 2 and $2\frac{1}{2}$ -Ton (Chevrolet) .....	6.40/8.72 to 1
$2\frac{1}{2}$ and H.D. $2\frac{1}{2}$ -Ton (Except School Bus	
and Tandem (Eaton Hypoid) .....	6.50/9.04 to 1
H.D. $2\frac{1}{2}$ -Ton (Except School Bus	
and Tandem (Eaton Spiral Bevel) .....	6.50/8.87 to 1

## ADJUSTMENT SPECIFICATIONS

Spark Plugs (Standard) .....	2 and $2\frac{1}{2}$ -Ton .....	C-42 Com.
	All Others .....	.44
	Gap—All .....	.035"

Breaker point gap—6-cyl. Engines.....	{ .019" new lever
	{ .016" used lever

Distributor points on 6-cylinder engine to break when steel ball in flywheel is in line with pointer on flywheel housing.

Octane selector should be set for the grade of fuel being used to produce a slight "ping" on acceleration.

Updraft Carburetor idling adjustment .....

$\frac{1}{2}$  to  $1\frac{1}{2}$  turns open

Downdraft Carburetor idling adjustment .....

1 to  $2\frac{1}{2}$  turns open

### Engine Idling Speed

With Conventional Transmission..... 475 R.P.M.

With Automatic Transmission..... 450-475 R.P.M. in Drive

### Valve Clearances (Hot)

	$\frac{1}{2}$ , $\frac{3}{4}$ and 1 Ton	$1\frac{1}{2}$ and 2 Ton	L.C.F. and $2\frac{1}{2}$ Ton
Intake.....	.006	.006	(Hydraulic
Exhaust.....	.018	.020	Lifters)

Clutch pedal free travel.....  $\frac{3}{4}$ " to 1"

Brake pedal toe-board clearance..... L.C.F.  $1\frac{3}{4}$ "

Others  $1\frac{1}{16}$ "

### Brake shoe release after slight drag is felt

$\frac{1}{2}$ -Ton (front and rear) .....	7 adj. notches
$\frac{3}{4}$ and 1-Ton (front and rear) .....	{ Just enough to
$1\frac{1}{2}$ and 2-Ton (front) .....	{ eliminate drag
$1\frac{1}{2}$ and 2-Ton (rear) $2\frac{1}{2}$ -Ton (front and rear).....	3 adj. notches

### Toe-in of front wheels

$\frac{1}{2}$ -Ton .....	$\frac{1}{8}$ " to $\frac{7}{32}$ "
$\frac{3}{4}$ , 1, $1\frac{1}{2}$ , 2 and $2\frac{1}{2}$ -Ton .....	$\frac{1}{4}$ " to $\frac{1}{16}$ "

## **CHAPTER V**

### **GENERAL INFORMATION**

#### **MANUFACTURER'S WARRANTY**

It is expressly agreed that there are no warranties, expressed or implied, made by either the Dealer or the Manufacturer on Chevrolet motor vehicles, chassis or parts furnished hereunder, except the Manufacturer's warranty against defective materials or workmanship as follows:

"The Manufacturer warrants each new motor vehicle, including all equipment or accessories (except tires) supplied by the Manufacturer, chassis or part manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory any part or parts thereof which shall, within ninety (90) days after delivery of such vehicle to the original purchaser or before such vehicle has been driven 4,000 miles, whichever event shall first occur, be returned to it with transportation charges prepaid and which its examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties, expressed or implied, and all other obligations or liabilities on its part, and it neither assumes nor authorizes any other person to assume for it any other liability in connection with the sale of its vehicles.

"This warranty shall not apply to any vehicle which shall have been repaired or altered outside of an authorized Chevrolet Service Station in any way so as in the judgment of the Manufacturer to affect its stability and reliability, nor which has been subject to misuse, negligence or accident. The Manufacturer has reserved the right to make changes in design or add any improvements on motor vehicles and chassis at any time without incurring any obligation to install same on motor vehicles and chassis previously purchased.

#### **TIRE AND BATTERY WARRANTIES**

The tires and battery furnished with your new Chevrolet carry separate warranties and should be registered with the nearest agent of the particular manufacturer. Your Chevrolet dealer will gladly assist you in this registration.

# LOAD CAPACITY CHART

## GROSS VEHICLE WEIGHTS FOR 1957 CHEVROLET TRUCKS AND SCHOOL BUSES

VEHICLE TYPE	MODEL AND SERIES DESIGNATION	WHEEL BASE	NOMINAL RATING	GROSS VEHICLE WEIGHT	GROSS COMBINATION WEIGHT	TIRES AND EQUIPMENT **	
						TIRE SIZE & PLY RATING	EQUIPMENT
SEDAN DELIVERY	1508	D57	115	4000		FRONT	
				4100		REAR	
LIGHT DUTY CONVENTIONAL	3100 3200	3A57 3B57	114 123 1/4	4000		7.50-14.4	7.50-14.4
				4300		7.50-14.5	7.50-14.5
				4600		6.70-15.4	6.70-15.4
				4900		6.70-15.5	6.70-15.5
				5200		6.50-16.6	6.50-16.6
LIGHT DUTY FORWARD CONTROL	3400 3500 3700	3C57 3D57 3F57	104 125 137	4700		7-17.5-6	7-17.5-6
				5000		8-19.5-6	8-19.5-6
				5300		8-19.5-6	8-19.5-6
				5600		8-19.5-6	8-19.5-6
				5900		8-19.5-6	8-19.5-6
LIGHT DUTY CONVENTIONAL	3800	3E57	123 1/4	6200		8-19.5-6	8-19.5-6 Dual
				6500		7-17.5-6	7-17.5-6
				6800		7-17.5-6	7-17.5-6
				7100		8-17.5-6	8-17.5-6
				7400		8-17.5-6	8-17.5-6
MEDIUM DUTY CONVENTIONAL AND LOW CAB FORWARD	4100 4400	4A57 4B57	132 1/2 156 1/2	6200		8-17.5-6	8-17.5-6
				6500		8-19.5-6	8-19.5-6
				6800		8-19.5-6	8-19.5-6
				7100		8-19.5-6	8-19.5-6
				7400		8-19.5-6	8-19.5-6
MEDIUM DUTY CONVENTIONAL AND LOW CAB FORWARD	5100S 5400S 5700S 6100S 6400S 6500S	5D57 5E57 5F57 6F57 6G57 6H57	112 1/2 136 1/4 160 1/4 132 1/2 156 1/2 174 1/2	14000		8-22.5-6	8-22.5-6 Dual
				14500		8-22.5-6	8-22.5-6 Dual
				15000		8-22.5-6	8-22.5-6 Dual
				15500		8-22.5-6	8-22.5-6 Dual
				16000		8-22.5-6	8-22.5-6 Dual



MEDIUM DUTY CONVENTIONAL AND LOW CAB FORWARD (Cont.)	5100	5A57	112½	2 Ton L.C.F.	£14000 *16000 *18000 *19500	8-22.5-8 8-22.5-8 9-22.5-10 9-22.5-10	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 10-22.5-10 Dual	H.D. 9-leaf front spring; H.D. 13-leaf main & 6-leaf aux. rear spring
	5400	5B57	136½		32000	8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	H.D. 10-leaf front spring
	5700	5C57	160½			8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	H.D. 10-leaf front spring; H.D. 13-leaf main & 6-leaf aux. rear spring
	6100	6A57	132½	2 Ton Conventional	*18000 *19500	8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	Same as above except that a Taskmaster V8 engine is mandatory
	6400	6B57	156½			8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	
	6500	6C57	174½			8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	
	6200	6157	130	2 Ton	£14000 *16000	8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	
	6600	6K57	154			8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-10 Dual	
	4502	4C57	156½	30 Pupils 30 Pupils 35 Pupils 35 Pupils 42 Pupils 43 Pupils	£10500 *12000 *12000 *12000 *14000 *15000	7-22.5-6 7-22.5-8 8-19.5-8 8-22.5-8 8-22.5-8 8-22.5-8	7-22.5-6 Dual 7-22.5-8 Dual 8-19.5-8 Dual 8-22.5-8 Dual 8-22.5-8 Dual 8-22.5-8 Dual	Hydrovac Hydrovac Hydrovac
	6702	6D57	196½	48 Pupils 48 Pupils 48 Pupils 54 Pupils	£18000 *18000 *18000 *18000	9-22.5-10 9-22.5-10 9-22.5-12 9-22.5-12 9-22.5-10 9-22.5-10 9-22.5-10 9-22.5-10	9-22.5-10 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual 9-22.5-10 Dual 9-22.5-10 Dual 9-22.5-10 Dual 9-22.5-10 Dual	H.D. 15-leaf 2-stage rear springs
SCHOOL BUS CHASSIS ***	6802	6E57	222½		17000 *18000 *18000 *18000	9-22.5-10 9-22.5-10 9-22.5-12 9-22.5-12	9-22.5-10 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	H.D. 15-leaf 2-stage rear springs
	8802	8F57	240	60 Pupils	£14000 17000 *19000	8-22.5-8 9-22.5-10 9-22.5-12 9-22.5-12	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
	10802	10F57	240	60 Pupils	£17000 *19500 *22000	9-22.5-10 10-22.5-10 10-22.5-10 10-22.5-10	9-22.5-10 Dual 10-22.5-10 Dual 10-22.5-10 Dual 10-22.5-10 Dual	H.D. 16000 <sup>4</sup> cap. rear axle H.D. 14-leaf 2-stage rear spring
	7100	7A57	112½	2½ Ton Low Cab Forward	£14000 17000 18000 *19500 *21000	8-22.5-8 8-22.5-8 9-22.5-10 9-22.5-10 9-22.5-10	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual 9-22.5-10 Dual	
	7200	7B57	124½		34000	8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
	7700	7C57	172½			8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
HEAVY DUTY CONVENTIONAL AND LOW CAB FORWARD	7100	7A57	112½	2½ Ton Low Cab Forward	£14000 17000 18000 *19500 *21000	8-22.5-8 8-22.5-8 9-22.5-10 9-22.5-10 9-22.5-10	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual 9-22.5-10 Dual	
	7200	7B57	124½		34000	8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
	7700	7C57	172½			8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	
						8-22.5-8 8-22.5-8 8-22.5-8 8-22.5-8	8-22.5-8 Dual 9-22.5-10 Dual 9-22.5-12 Dual 9-22.5-12 Dual	

# LOAD CAPACITY CHART (Cont.)

## GROSS VEHICLE WEIGHTS FOR 1957 CHEVROLET TRUCKS AND SCHOOL BUSES

VEHICLE TYPE	MODEL AND SERIES DESIGNATION	WHEEL BASE	NOMINAL RATING	GROSS VEHICLE WEIGHT	GROSS COMBINATION WEIGHT	TIRES AND EQUIPMENT **	
						TIRE SIZE & PLY RATING	EQUIPMENT
HEAVY DUTY CONVENTIONAL AND LOW CAB FORWARD (Cont.)	8100	8A57	132½	14000	17000	FRONT 8-22.5-8	REAR 8-22.5-8 Dual
	8200	8B57	144½	17000	18000	8-22.5-8	9-22.5-10 Dual
	8400	8C57	156½	19500	21000	9-22.5-10	9-22.5-12 Dual
	8500	8D57	174½	21000	21000	9-22.5-10	10-22.5-10 Dual
	8700	8E57	192½	21000	35000	9-22.5-10	10-22.5-10 Dual
				17000	19500	9-22.5-10	9-22.5-10 Dual
				19500	22000	9-22.5-10	10-22.5-10 Dual
	9100	9A57	112½	22000	42000	9-22.5-10	10-22.5-10 Dual
	9200	9B57	124½	25000	48000	10-22.5-10	11-22.5-12 Dual
	9700	9C57	172½	25000	48000	10-22.5-10	11-22.5-12 Dual
HEAVY DUTY TANDEM OPTION	10100	10A57	132½	17000	19500	9-22.5-10	9-22.5-10 Dual
	10200	10B57	145½	19500	22000	9-22.5-10	10-22.5-10 Dual
	10400	10C57	156½	22000	42000	9-22.5-10	10-22.5-10 Dual
	10500	10D57	174½	25000	48000	10-22.5-10	11-22.5-12 Dual
	10700	10E57	192½	25000	48000	10-22.5-10	11-22.5-12 Dual
				17000	19500	9-22.5-10	9-22.5-10 Dual
				19500	22000	9-22.5-10	10-22.5-10 Dual
				22000	42000	9-22.5-10	10-22.5-10 Dual
				25000	48000	10-22.5-10	11-22.5-12 Dual
				25000	48000	10-22.5-10	11-22.5-12 Dual
HEAVY DUTY TANDEM OPTION	10400	10C57	156½	24000	28000	8-22.5-8	8-22.5-8 Dual
	10500	10D57	174½	28000	32000	8-22.5-8	9-22.5-10 Dual
	10700	10E57	192½	32000	50000	9-22.5-10	10-22.5-10 Dual

\*—A plate is supplied with each vehicle showing chassis number and maximum Gross Vehicle Weight (GVW). The maximum GVW rating includes the truck chassis with lubricants, water and full tank or tanks of fuel, plus the weight of the cab or driver's compartment, body, and special chassis and body equipment, and payload. These GVW ratings are reduced per above table when tires and/or equipment of lesser capacity are used. Series D57 plate shows no GVW.

\*\*—Minimum equipment and tires for each GVW rating shown. extra ply rating and/or oversize tires and equipment are available.

\*\*\*—Minimum School Bus Standards require tires of same size and ply rating on both front and rear of vehicle. However, when Minimum School Bus Standards are not compulsory, tires of lesser size and ply rating for the front wheels are available.

## OWNER'S SERVICE POLICY

Upon delivery of your new Chevrolet truck, you received an Owner Service Policy from your Chevrolet dealer. Please read it carefully.

Under the terms of this policy you are entitled to receive, from any Chevrolet dealer in the U.S.A. or Canada, an inspection and adjustment, on a no charge basis, if the policy coupon is presented within 1500 miles of vehicle operation.

Any Chevrolet dealer in the U.S.A. or Canada is authorized to replace, without charge for material or labor, any parts found to be defective under the terms of the Chevrolet Factory Warranty.

Always keep the Owner Service Policy with the truck during the warranty period as it serves to introduce the owner to any Chevrolet dealer.

### OWNER SERVICE POLICY

- 1. Delivery . . .** The Dealer will see that the vehicle is properly prepared according to Standard Factory instructions before delivery to the owner.
- 2. Use of this Policy . . .** This Owner Service Policy entitles the owner to receive service in accordance with the terms hereof at all authorized Chevrolet Service Stations. This Policy should be carried in the vehicle at all times.
- 3. Installation of Parts Furnished Under Warranty . . .** Parts supplied under the manufacturer's warranty (see Owner's Manual) will be installed by any Chevrolet dealer in the United States or Canada without any charge for labor.
- 4. 1000-Mile Adjustment . . .** The attached coupon, when signed by the authorized Chevrolet selling Dealer, entitles the owner to the inspection and adjustments listed on the back. These services are given free by any Chevrolet dealer in the United States or Canada upon surrender of the coupon.
- 5. Inspections . . .** In order that your Chevrolet vehicle may provide maximum service and dependability, we suggest that you have it inspected every 30 days or 1000 miles by an authorized Chevrolet service station.
- 6. Tourist Privilege . . .** Upon presentation of this Policy by the owner when touring, any authorized Chevrolet service station in the United States or Canada will perform the services as outlined in paragraphs three, four and five.
- 7. Change of Residence . . .** In the event the owner moves to another location before the warranty period has expired, the authorized Chevrolet service station serving the new locality will fully honor this Policy, and will render any no-charge service due under paragraphs three, four and five.

***Owner's Manuals  
Service Manuals  
Vintage Ads  
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